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HANDBOOK

OF

MATERIA MEDICA, PHARMACY, AND THERAPEUTICS,

INCLUDING THE

PHYSIOLOGICAL ACTION OF DRUGS, THE SPECIAL THERAPEUTICS OF DISEASE, OFFICIAL AND PRACTICAL PHARMACY, AND MINUTE DIRECTIONS FOR PRESCRIPTION WRITING.

BY

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FIFTH EDITION. REVISED AND ENLARGED.

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TO MY WIFE

WHOSE DEVOTED CARE AND

PATIENT ENCOURAGEMENT,

DURING THE PAST SIXTEEN YEARS,

HAS SUPPORTED THE AUTHOR

IN EVERY EXIGENCY OF

HIS PROFESSIONAL LIFE.

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PREFACE TO THE FIFTH EDITION.

THE last revision of the U. S. Pharmacopœia included 89 additions to the official list of drugs and their preparations, 92 dismissals therefrom, 282 changes of official titles and 40 changes in strength of the more important preparations, besides innumerable alterations in the solubilities of chemical substances, in specific gravities, botanical nomenclature, constituents of preparations, etc. The incorporation of so many changes into this book has necessitated the complete rewriting of the pharmaceutical parts thereof; and in addition, the author has thoroughly revised the text wherever necessary to bring it up to the present requirements of teachers, students and practitioners. Several articles, including those on Alcohol, Carbolic Acid, Creosote and Digitalis, have been entirely rewritten, and many others have been more or less expanded. New articles have been inserted on nineteen drugs which were not noticed in the previous editions. Eight new titles have been added to the section on Special Therapeutics, besides over two hundred brief references throughout its text. The article on the Treatment of Poisoning has been enlarged and recast in a form which, it is hoped, will prove more useful for rapid reference than its former shape. By placing the articles on drugs of minor importance in a smaller type, and by the omission of some matter formerly included in the appendix, the increase in the text has been kept within the bounds of thirty-two additional pages.

The Index has been materially curtailed by omitting the pharmaceutical names of preparations, also the old designations of salts (as Nitrate of Silver), rendered obsolete by the adoption of the new chemical nomenclature in the pharmacopœia. Every index reference has been retained which could not be quickly found by the alphabetical arrangement of the text.

It gives the author sincere pleasure to acknowledge here his indebtedness to those reviewers and correspondents who have pointed out defects and errors in former editions. He has endeavored, in this edition, to profit by all such criticisms, without materially changing the original plan of the book, or those characteristic features which have proved important factors among the elements of its success. For the continued appreciation of his work by those for whom he designed it, the author again expresses his gratitude, which he has sought to evince by making the book even more accurate and useful than when it first earned their favor.

It is a source of much gratification to the undersigned to find that the use of the word "official" instead of "officinal," urged by him in the preface to the first edition of this book, has become official by adoption in the last revision of the pharmacopœia.

SAM'L O. L. POTTER.

San Francisco, California.
September 1st, 1894.

# EXTRACTS
FROM THE
PREFACE TO THE FIRST EDITION.

The author's intention has been to produce a book which would embrace in a single volume the Essentials of practical Materia Medica and Therapeutics, treating of each subject in as concise phraseology as possible consistent with the delineation of every important feature. He has also endeavored to formulate such minute and definite directions for the framing of Prescriptions as might eludicate what to many is a very difficult problem. Furthermore, he has tried to present as much information upon the subject of Pharmacy as every physician should possess, in order to handle the implements of his profession with confidence, and to direct their use by others with pharmaceutical accuracy.

The complete fulfilment of these aims would be realized if the book should take rank as a working companion to the advanced student and the junior practitioner; and be deemed by them a reliable guide through the forest of observations and experiments on drug actions and uses, which makes progress slow for the already over-burdened mind, when ploughing through the more exhaustive and exhausting text-books.

Although this book is essentially a compilation, as all books of its class must be, there will be found in its pages much original matter derived from the writer's own experience in professional life. The arrangement of the matter will be found to be in some respects unique. After full consideration of the many arrangements of the Materia Medica in vogue, a modified alphabetical plan was adopted, by which the advantages of the alphabetical order might be retained, while permitting the grouping together of agents which are closely related, physiologically and therapeutically, under the title of the principal member of the class—the chief, as it were, of that particular clan. Thus, under the title AMYL NITRIS will be found mention also of the Ethyl, Sodium and Potassium Nitrites, and their congener Nitro-Glycerin, all of which are closely allied to the first-named and to each other, in respect of their actions and uses. A very elaborate section on Drug Classification is placed before the Materia Medica, in order to supplement such deficiencies in grouping as are inevitable in an alphabetical arrangement.

In detailing the characteristics of an important drug, its physical properties and chemical constituents are first briefly enumerated, then its preparations are described in the official language of the pharmacopœia, usually somewhat abbreviated; any important unofficial preparations being also noted, and all the compounds into which it enters enumerated. Next the physiological action is taken up, its characteristic features being first described; then the actions resulting from an ordinary medicinal dose, next those produced by small doses continued, and finally those from a toxic dose. These are followed by a brief account of its antagonists, antidotes and incompatibles, if any; and a concise summary of its therapeutical applications closes the article;—the whole presenting, it is hoped, a clearly defined word-picture of the drug under consideration. Every article and preparation comprised in the last edition of the U. S. Pharmacopœia is fully noticed, while all the prominent unofficial agents receive such mention as their respective importance seems to demand.

The second part of the book is devoted to Pharmacy, and has been written from the standpoint of a conviction that many young practitioners would gladly dispense their own medicines, if provided with a few practical directions on the subject; thereby saving many a dollar from the drug store, preventing in their own practices at least the "renewals" which constitute so bad a feature of modern pharmaceutics, and gaining for themselves a practical acquaintance with their professional weapons which cannot but make them better physicians and more accurate prescribers. In this section of the book Prescription Writing receives full consideration, and many standard formulæ are given as samples of prescriptions of each kind in extemporaneous use.

In the third part the subject of Special Therapeutics is treated of elaborately, and in the form of an alphabetically arranged Index to the treatment of diseases, as laid down by the most recent authorities. Every indication for the use of a drug is referred to its author by his initial, and to the most prominent articles are appended a few selected formulæ, to serve as guides to the neophyte in prescribing.

Nearly all the regular text-books have been laid under contribution in the preparation of the book, but especial use has been made of the works of Brunton, Ringer, Wood, Phillips, Waring and Bartholow, in their latest editions; as well as of the writer's *verbatim* notes of two courses of didactic and clinical lectures delivered by Professors Da Costa and Bartholow in the Jefferson Medical College and Hospital and in the auditorium of the Pennsylvania Hospital. On page 502 will be found a full list of the authorities referred to by initials in the section on Special Therapeutics.

The Appendix contains numerous tables, comprising diagnostic hints, Latin terms and phrases, formulæ for hypodermic use, metric equivalents, and specific gravities and volumes; also Notes on temperature in disease, the use of the clinical thermometer, the treatment of poisoning, and the examination of urine; also formulæ representing the most noted patent medicines.

The Index has received special attention, from a conviction that, if well made, it is the best part of a good book. Every title, synonym and other reference of importance is included therein, double and treble entries being made in every instance which seemed to require such repetition.

The term "officinal," as applied to drugs recognized by the pharmacopœia, has been discarded, the word "official" being used instead; for the simple reason that the idea to be conveyed is expressed more correctly by the latter term than by the former one. When none but official drugs and preparations were kept in the *officina* or drug store, it was eminently proper to call them "officinal," but inasmuch as this class does not nowadays constitute much over one-fourth part of the officinal stock, it is a wilful debasement of our professional weapons, as well as an inexcusable misnomer, to apply the shop-title to them any longer.

Cooper Medical College, San Francisco,
December, 1886.

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EXPLANATION.

Numerals unqualified, under the subtitles *Preparations* in Part I, denote grammes for solids and cubic centimeters for liquids.

For Signs and Abbreviations used, see pages 435 to 437.

ERRATA.

Page 63, line 16 from bottom,—for "*Impure*" read "*Crude*."
Page 63, line 7 from bottom,—for "Creosol" read "Cresol."
Page 113, line 13,—the dose of Sodium Nitrite should not exceed gr. iij.
Page 149, line 8 from bottom,—strike out the word "Unofficial."
Page 151, line 14 from bottom,—read "in one of the last chapters" etc.
Page 161, lines 8 and 18,—for "Preparata" read "Præparata."
Page 171, line 9 from bottom,—strike out the hyphen after Carbonei.
Page 185, under Aqua Chloroformi,—insert "Dose, ℥ ss–ij."
Page 196, line 10,—for "alkaloid" read "substance."
Page 254, line 13 from bottom,—for "*Gaultheriana*" read "*Gautheriana*."
Page 290, line 22 from bottom,—for "ʒj" read "℥j."
Page 303, line 11 from bottom,—for "Mryrh" read "Myrrh."
Page 325, line 13,—for "Caffeine Citrate" read "Citrated Caffeine."
Page 345, line 4 from bottom,—after "gr. xx" insert "ʒj as diuretic and refrigerant; ʒj–℥j as purgative."
Page 386,—after the Fluid Extract insert "Dose, ʒss–℥ss,"—after the Syrup insert "Dose ʒj–℥j."
Page 396, line 11 from bottom,—insert the word "page" after "*ante*."
Page 450, line 11,—after "Strychnine" insert "Morphine."
Page 765, lines 15 and 16,—strike out "ACID CARBONIC," and after "COAL-GAS" insert "NITROUS OXIDE GAS."

INTRODUCTION.

Pharmacology, (*Pharmakon*, a drug, *Logos*, a discourse,)—is a general term which properly includes all matters pertaining to the study of medicinal agents in the widest possible sense, embracing all of Materia Medica and Pharmacy, with so much of Therapeutics as relates to drugs. The term is however frequently employed in a more restricted sense, including only the physiological action of drugs; a subject to which the title *Pharmacodynamics* is much more appropriately applied.

Materia Medica is that branch of medical science which treats of the substances used as medicines, their origin, composition, physical characteristics, chemical properties, modes of preparation and administration, physiological and toxicological actions.

Pharmacodynamics, (*Pharmakon*, a drug, *Dunamis*, power,)—is the proper title for that portion of the Materia Medica which relates to the physiological action of drugs, that is, the influence of drugs upon the healthy human body to modify its physiological activity.

Toxicology is another subdivision, and includes the effects of drugs when administered in poisonous doses, together with the study of the drug-antagonists for the most dangerous symptoms produced and the appropriate chemical antidotes.

Pharmacy is the art of preparing medicines for use and dispensing them on the order of the therapeutist. It includes a knowledge of the Materia Medica, an acquaintance with the theories and manipulations of chemistry, and an intimate practical knowledge of many special operations peculiar to itself.

Therapeutics, (*Therapeuein*, to attend upon,)—includes all that relates to the science and art of healing; and embraces the application, not only of medicines, to the alleviation or cure of disease, but of all other agents which may aid in the accomplishment of the same result.

The operations of Nature herself, as well as of the substances described in the Materia Medica, and those of all other remedial measures, as food, climate, clothing, heat, cold, electricity, etc., are all embraced in the general term Therapeutics, which may be divided into two grand divisions, viz.:—

Natural Tnerapeutics, including the operations of the Vis Medicatrix Naturæ,—the modes and processes of healing which occur independently of Art, for the spontaneous decline and cure of disease. There is no more completely established dogma in science, than that *The Living Organism is in itself adequate to the cure of all its curable disorders.* This Natural Law enables the homœopath to relate his sugar cures, aids the medical skeptic to hold to his infidelity, and helps all physicians out of more close places than most of them are willing to acknowledge before their *clientèle*. This part of the subject is not taught in the schools except in connection with pathology, and by the chair of Theory and Practice of Medicine. It is deserving of a special chair and of more systematic treatment than it receives.

Applied Therapeutics embraces the application by Art of agents foreign to the living organism, for the purpose of aiding Nature to restore the body to a healthy condition. This division is the portion of the subject which is taught separately and systematically in the schools, and therefore is alone considered in the following pages.

Other divisions of the general subject of Therapeutics employed in professional literature and conversation are those entitled "Empirical" and "Rational Therapeutics."

Empirical Therapeutics is a term applied to the use of medicinal or other therapeutical agents for the sole reason that they have been tried previously with successful results in cases apparently identical with the one under treatment. By those who advocate this method it is styled the Therapeutics of Experience, and claimed to be an accumulation of means of combating disease simply by observation and experiment, independently of physio-pathological reasoning (Hartshorne). It was necessarily the original method in Therapeutics, has conferred many rich gifts upon medical science, and has been advocated by many great physicians, its latest and ablest expounder being the eminent and lamented Niemeyer.

The use of Opium to relieve pain,—that of Cinchona for malarial fevers,—of Colchicum in gout,—of Potassium Iodide in syphilis,—of the Bromides in epilepsy,—of Cod-liver Oil in phthisis,—are examples of the empirical use of remedies. But, after all has been said for it that can be said, the fact remains that it is essentially an unscientific method, a mere elaboration of the prevailing popular habit of recommending Mrs. A. to use pepper tea, because it cured Mrs. B. of "the very same trouble." Permitted to reign supreme, it would be destructive to all exactness in therapeutical progress. The so-called "experience" of one observer is too often overbalanced by the experience of another equally competent and trustworthy; and as few are encouraged to record their failures with remedies, there can be no scientific comparison of the failures with the reported successes. For this reason empirical methods would tend to a minimum degree of accuracy in a science which, in the very nature of things, can never be an exact one;—though undoubtedly such methods will always prevail to some extent.

Rational Therapeutics embraces the use of remedies for reasons based on a knowledge (1) of the pathological conditions present in the subject, and (2) of the physiological action of the agent employed. This method is the very antithesis of empiricism, and has been the leading idea in every revolt against empirical therapeutics in the past. Humoralism, Chemicism, Solidism, Stimulism, Galenism in the 2d century, Paracelcism in the 16th, and Hahnemannism in the 19th, all originated in efforts to find a more rational system of administering medicines than the prevailing empiricism of the day.

The illustrious Albrecht von Haller, the father of Physiology and the author of the doctrine of Irritability, was the real originator of modern physiological therapeutics. In the preface to his Swiss Pharmacopœia (*circa* A.D. 1755), occur the following remarkable directions,—the first recorded of their kind:—

"Nempe primum in corpore *sano* medela tentanda est, sine peregrina ulla miscela; odoreque et sapore ejus exploratis, exigua illius dosis ingerenda et ad omnes quæ inde contingunt affectiones, quis pulsus, quis calor, quæ respiratio, quænam excretiones, attendendum. Inde adductum phenominorum in sano obviorum, transeas ad experimenta in corpore ægroto."

> "*In the first place the remedy is to be tried on the healthy body, without any foreign substance mixed with it; having been examined as to its odor and taste, a small dose is to be taken, and the attention directed to all effects which thereupon occur; such as upon the pulse, the temperature, the respiration, the excretions. Having thereby adduced their obvious phenomena in health, you may pass on to experiment upon the sick body.*"

Forty or more years after these rules were laid down *ex cathedra* by Haller, the central idea contained in them was incorporated as one of the main pillars, into a medical edifice then being erected in Germany. In the course of construction this pillar became so hidden beneath a superstructure of palpable absurdities, that the medical profession, in its anxiety to steer clear of the whole mass, almost forgot the corner-stone of truth, appropriated from the teachings of one of its own greatest teachers. While, however, the masses of the profession, blinded by prejudice, turned away from everything which savored of drug-experiment, a few in every country were quietly working on the lines of Haller's dogma that *Drug-proving is the only true basis of drug-using.* As a result of their labor, the present generation sees the development of an idea, announced nearly 140 years ago, but now inspiring the minds of teachers and students all over the civilized world. Medical Colleges are recognizing physiological drug-experimentation as a part of their regular curricula;—laboratories are fitted up in many of the schools with costly instruments of precision, for the more exact prosecution of this study; and under the direction of such men as Wood, Ringer, Murrell, Brunton, Hildebrandt, Liebermeister, Husemann, Schmiedeberg, etc., systematic researches are being conducted upon animals to ascertain the physiological action of every agent hitherto used in medicine. The alkaloids, and other component principles of vegetable drugs, are being subjected to the same rigid observation,—as also every new compound which chemistry gives to medicine. Journals, in every civilized country, teem with the results of these labors; and no medical student is permitted to pass the graduating ordeal until he has mastered the essential characteristics of the physiological action of the important medicaments so far as established. What has hitherto been the conviction of but a few, is daily growing into a fixed canon of professional belief,—that physiological experimentation with drugs must be the basis of their therapeutical employment, and that all real advance towards the establishment of Therapeutics as a science, must be made upon the lines laid down by Haller, *i. e.*, drug-proving upon the healthy human organism. Still, in the words of Brown-Séquard, "Therapeutics will cease to be empirical, only when this last kind of knowledge shall be fully obtained;"—but its fulness will never be fully realized, unless the results have been thoroughly considered with full regard to the differences due to the action of drugs in different doses on the human organism in health and disease.

ADMINISTRATION OF MEDICINES.

Medicines may be introduced into the circulation by various routes, as the gastro-intestinal tract, the rectum, the respiratory tract, the veins and arteries, the subcutaneous cellular tissue, and the integument itself.

The Gastro-intestinal Route is the one most frequently employed, being the most convenient. The remedies after being swallowed, find their way into the current of the circulation, through the walls of the gastro-intestinal bloodvessels and the lacteals. When the stomach is empty and its mucous membrane healthy, crystalloidal substances in solution pass through the walls of its vessels with great rapidity. Colloidal substances (fats, albumen, gum, gelatin, etc.) require to be digested and emulsified before they can be absorbed.

The Rectum will absorb many substances applied in the form of Enemata or Suppositories. Those most suited to this route are the salts of the alkaloids in solution, especially those of Morphine, Atropine and Strychnine, the latter being absorbed more rapidly per rectum than by the stomach. Acid solutions, if not too frequently repeated, are also well administered by this channel.

The Respiratory Tract admits of the rapid absorption of medicinal substances through its extensive blood-supply. The inhalation of vapors or atomized fluids, the insufflation of powders into the nares, fauces, larynx, etc., and the use of a medicated nasal douche, are methods whereby this channel may be utilized.

The Veins are only used as a route of medication in emergencies, when the other channels are not available, and where immediate action is necessary to the preservation of life, the operation being a highly dangerous one. The injection intravenously of *Saline Solutions* in the collapse of cholera, diabetic coma, etc.,—*Blood* or *Milk* as a last resort in excessive hemorrhage, epilepsy, uræmia, the collapse of cholera, etc.,—and a solution of *Ammonia* for the bites of venomous reptiles, Hydrocyanic-acid poisoning, Opium narcosis, Chloroform asphyxia, etc., are the instances admitted in practice.

Arterial Transfusion has also been performed successfully in a number of cases, and is considered safer than venous transfusion when a large quantity of fluid has to be introduced into the circulation. A special apparatus is employed for these purposes, known as Aveling's Transfusion Syringe, but the ordinary Dieulafoy's aspirator slightly modified, may be used with safety and convenience. The danger of the operation lies in the liability of the introduction of air into the circulation, an occurrence which may cause instant death in the human subject.

The Hypodermic Method is the introduction of medicines into the organism by injecting them into the subcutaneous areolar tissue, from which they are quickly absorbed by the lymphatic and capillary vessels. The great advantage of this method is the absolute certainty as to the quantity of drug actively affecting the organism, a very essential question when using small quantities, as with powerful alkaloids. Another is the avoidance of reactions between the drug and the secretions of the stomach, which may destroy the activity of the former, or seriously change its character. The medicines must be in solution, of neutral reaction and freshly prepared, the usual menstruum being distilled water; though filtered spring water will answer just as well, and much better than distilled water which has been standing several days, and exposed from time to time to the air. The solution is to be injected *beneath* the skin, by a hypodermic syringe, care being taken to avoid puncturing a vein. The most suitable localities for the injection are the *external* aspect of the arms and thighs, the abdomen, the back, and the calves of the legs. On the external aspect of the thigh, just in front of the great trochanter, there is an area of some two inches square, over which the insertion of a fine hypodermic needle is not felt, so barren is the skin in that region of sensitive nerve filaments.

After nearly filling the syringe with the solution to be used, the needle should be screwed on tightly; and with the instrument held in a vertical position, point uppermost, the excess of solution over the amount required should be ejected, thus expelling air-bubbles and filling the needle itself. A portion of skin may be grasped by the thumb and forefinger at the site selected for the injection, into which the needle should then be quickly inserted until its point has passed *beneath* the skin, when the piston may be pressed down slowly, delivering the solution gradually so as to avoid rupturing the tissue. If the solutions are freshly prepared with clean water, the needles kept clean and sharp, and the injection be made *beneath* the skin *not into it*, there will be no risk of producing abscesses with the agents ordinarily employed. *Tablets* for hypodermic use are prepared by the prominent manufacturers, each containing one dose. They may be readily dissolved in a teaspoon at the bedside, or in the syringe itself, if one be used which has a screw-hole sufficiently large to admit the pellet before screwing on the needle. A regular line of Hypodermic Tablets includes the agents named in the following list, put up in tubes of 25 each.

List of Hypodermic Tablets.

Aconitine (crystals),	gr. $\frac{1}{120}$.	Morphine Sulphate,	gr. $\frac{1}{8}$.
Apomorphine Muriate,	gr. $\frac{1}{10}$.	Morphine & Atropine, No. 1.	
Atropine Sulphate,	gr. $\frac{1}{50}$.	Morphine Sulph.,	gr. $\frac{1}{8}$.
Atropine Sulphate,	gr. $\frac{1}{100}$.	Atropine Sulph.,	gr. $\frac{1}{200}$.
Cocaine Hydrochlorate,	gr. $\frac{1}{4}$.	Morphine & Atropine, No. 2.	
Coniine Hydrobromate,	gr. $\frac{1}{8}$.	Morphine Sulph.,	gr. $\frac{1}{4}$
Colchicine,	gr. $\frac{1}{30}$.	Atropine Sulph.,	gr. $\frac{1}{150}$
Corrosive Sub. and Urea,	gr. $\frac{1}{25}$.	Picrotoxin,	gr. $\frac{1}{50}$.
Digitalin (soluble),	gr. $\frac{1}{100}$.	Pilocarpine Hydrochlorate,	gr. $\frac{1}{3}$.
Gelsemine Muriate,	gr. $\frac{1}{50}$.	Pilocarpine Nitrate,	gr. $\frac{1}{3}$.
Hyoscine Hydrobromate,	gr. $\frac{1}{100}$.	Physostigmine Sulphate,	gr. $\frac{1}{100}$.
Hyoscyamine,	gr. $\frac{1}{50}$.	Sodium Arsenate,	gr. $\frac{1}{10}$.
Morphine Sulphate,	gr. $\frac{1}{4}$.	Strychnine Sulphate,	gr. $\frac{1}{50}$.
		Strychnine Sulphate,	gr. $\frac{1}{100}$.

[For Formulæ for Hypodermic Solutions, see Appendix.]

Parenchymatous Injection is the delivery of a medicine deeply into the tissues, either to affect a muscle itself or to locally influence some important nerve-trunk. The principal agents used in this manner are Strychnine for palsied muscles, Chloroform for sciatic and other neuralgias, Salts of Cocaine for local anæsthesia, and Carbolic Acid for deep-seated inflammations.

The Skin is an active absorbent of crystalloidal substances when its epidermis or cuticle is removed. By this route there are four methods of introducing medicaments into the circulation, viz.—the Enepidermic, Epidermic and Endermic Methods, and Inoculation.

The Enepidermic Method consists in placing the medicine in simple contact with the epidermis, no friction being used to hasten its penetration. Chloroform and Oleic Acid solutions of the alkaloids pass by osmosis in this manner with comparative ease, but aqueous solutions act very slowly, and alcoholic ones with great difficulty if at all.

The Epidermic Method consists in the use of friction to promote the passage of the medicament between the cells of the epidermis. Mercurial Ointment, Cod-liver Oil, and other fats, Oleates, etc., are used in this way for their local and systemic effects.

The Endermic Method obviates the difficulty of absorption through the cuticle by removing the latter through the agency of a blister, and then powdering the medicament over the surface of the denuded derma.

An ordinary Cantharides-plaster, followed by a poultice to raise the blister, may be employed; but a quicker method is to place upon the skin a piece of lint soaked in Stronger Water of Ammonia, covering it with a watch-glass or a piece of oiled silk to prevent evaporation. The blister raises rapidly and should then be removed with scissors. Morphine, Atropine, Quinine and Strychnine, are the agents generally used in this manner, but the method is painful and unpopular.

Inoculation is the introduction of medicinal agents through the scraped or punctured skin by an operation similar to that employed for vaccination.

CLASSIFICATION OF MEDICINES.

In the present state of knowledge respecting the actions and uses of medicinal agents, no really scientific classification of these substances is possible. Some writers have adopted a system based on the natural relations of the various articles to each other, while many classify them according to their effects on the human system, and others make no attempt at arrangement but treat of them in alphabetical order. The latter method has been followed in this work, from a conviction that every medicine should first be studied as an individual, both with respect to its physiological actions and its therapeutical applications. When the student has thus made himself familiar with the characteristic features of each article of the Materia Medica, he may begin, by comparing one with another, to seek acquaintance with their more delicate lights and shades. Some system of classification then becomes imperative as an aid to the memory, and as the titles of the groups to which the various agents belong in any physiological classification are also used to express their actions and uses, the following synopsis is inserted as an appropriate introduction to the section on Materia Medica and Therapeutics.

STIMULANTS AND SEDATIVES.

These are general terms employed in various classifications with very little discrimination.

Stimulant (*Stimulus*, a goad),—is a term which is used in various senses when applied to medicinal agents. Alcoholic preparations, which are true narcotics, are commonly termed "stimulants," and the same expression is employed to designate any agent which excites the organic action of a part of the economy.

Diffusible Stimulants are those which have a prompt but transient effect on the general system, such as Alcohol, Ammonia, Camphor, etc. *Spinal Stimulants* exalt the functions of the cord, as Strychnine, Picrotoxin, Ergot, Atropine, Phosphorus. *Cardiac Stimulants* increase the action of the heart, as Alcohol, Atropine and Morphine in small doses, Strychnine, etc., also Squill, Convallaria, Cimicifuga and Digitalis, which slow but strengthen the cardiac action. *Respiratory Stimulants* directly stimulate the respiratory centre, as Ammonia, Strychnine, Apomorphine, Belladonna, etc. *Vaso-motor Stimulants*, as Alcohol, Chloroform, Ether, Ammonia, Strychnine, Digitalis and Squill, acting on the vaso-motor centre; and the Nitrites, Belladonna, Electricity, Volatile Oils, etc., acting as local dilators of the vascular system. *Cerebral Stimulants*, as Alcohol, Opium, Belladonna, Caffeine, Cocaine, Theine, Cannabis, Chloroform, Ether, Tobacco, etc. *Renal Stimulants*, as the diuretic group. *Stomachic Stimulants*, as the Aromatics, Volatile Oils, Vegetable Bitters, Mineral Acids, Nux Vomica, Mustard, Capsicum, etc. *Hepatic Stimulants*, as Nitro-muriatic and Nitric acids, and the cholagogue purgatives Podophyllum, Jalap, Leptandra, Euonymin, Iridin, etc. *Intestinal Stimulants*, as Mercurials, Elaterium, Colocynth, Jalap, Scammony, Podophyllum, etc., which affect the glandular apparatus,—and Belladonna, Physostigma, Nux Vomica, Rhubarb, Senna, Aloes, Frangula, Cascara, etc., which chiefly affect the muscular fibres and the intestinal nerves. *Cutaneous Stimulants*, as the diaphoretic group, and the rubefacients Mustard, Capsicum, Turpentine, Ammonia, etc. All stimulation reacts into depression, and most of the agents which stimulate the nerve centres at first, soon depress and finally paralyze them. The action, in many cases, is one of progressive stimulation at first, and progressive paralysis afterwards, affecting the centres in the inverse order of their development, the highest or latest developed being affected first, the lowest or oldest last. These laws are well exemplified in the action of *Alcohol* upon the nervous system. [See the article ALCOHOL in Part I.]

Sedatives (*Sedo*, I allay),—are agents which exert a soothing influence on the system by lessening functional activity, depressing motility and diminishing pain.

General Sedatives include the narcotics and anæsthetics. *Local Sedatives* include Aconite, Opium, Ice, etc. *Pulmonary Sedatives*, as Hydrocyanic Acid, Veratrine and the nauseants and emetics. *Spinal Sedatives*, as Physostigma, Gelsemium, Potassium Bromide. *Stomachic Sedatives* include Arsenic, Bismuth, Silver Nitrate, Sodium Bicarbonate. *Vascular Sedatives*, as Digitalis, Tobacco, Aconite, Veratrum, and the emetics. *Nervous Sedatives*, among which are Potassium Bromide, Tobacco, Lobelia, and the group of spinal depressants.

AGENTS ACTING CHIEFLY ON THE NERVOUS SYSTEM.

Motor-Excitants are agents which increase the functional activity of the spinal cord and the motor apparatus, producing disturbances of motility, heightened reflex excitability, and tetanic convulsions when given in large doses, their ultimate effect being motor paralysis from overstimulation.

The most important members of this class are *Nux Vomica* and *Ignatia*, with their alkaloids *Strychnine* and *Brucine*, also *Thebaine*, the tetanizing alkaloid of Opium. It also includes Morphine and Atropine, which, though at first sedative, when given in large doses produce convulsions. The respiratory centre in the medulla is stimulated by Strychnine, Atropine, Ammonia, and small doses of Alcohol, Ether and Chloroform. The motor convolutions in the brain are stimulated by Alcohol in moderate doses, as also for a brief period by Ether and Chloroform.

The end-organs of the motor nerves are stimulated by the local use of Electricity, Strychnine and friction; and are irritated by the internal administration of Aconitine, Nicotine, Camphor, Pilocarpine and Pyridine. Other members of this class are embraced in the following list:—

Nux Vomica.
Ignatia.
Strychnine.
Brucine.
Thebaine.
Morphine.*
Atropine.*

Alcohol.†
Ether.†
Chloroform.†
Ammonia.
Absinthe.
Buxine.
Calabarine.

Ergot.
Ustilago.
Gossypium.
Picrotoxin.
Aconitine.
Nicotine.
Camphor.

Digitalis.
Convallaria.
Cimicifuga.
Pilocarpine.
Pyridine.
Rhus Toxicodendron.
Electricity.

Motor-Depressants lower the functional activity of the spinal cord and motor apparatus, and in large doses paralyze them. Some act indirectly by reducing the spinal circulation, as Digitalis, Aconite and large doses of Quinine; others by directly paralyzant action on the centres. The principal members of this class may be enumerated as follows, viz.—

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* In large doses.

† In small doses.

Opium, Morphine.
Gelsemium.
Muscarine.
Pulsatilla.
Grindelia.
Phytolacca.
Physostigma.
Belladonna.
Stramonium.
Hyoscyamus.
Pilocarpus.
Quebracho.
Camphor.
Aconite.
Tobacco.
Lobelia.
Carbolic Acid.
Curare.
Conium.
Chloral.
Ergot (at last).
Arnica.
Ailanthus.
Veratrum.
Alcohol. *
Ether. *
Chloroform. *
Bromides.
Potassium.
Lithium.
Zinc.
Hydrocyanic Acid.
Potassium Cyanide.
Amyl Nitrite.
Sodium Nitrite.
Methyl Strychnine.
Ethyl Strychnine.
Methyl Thebaine.
Methyl Veratrine.
Methyl Coniïne.
Other Methyl Compounds.
Ammonium Cyanide.
Ammonium Iodide.
Ethyl Ammonium Chloride.
Amyl Ammonium Chloride.
Amyl Ammonium Iodide.
Amyl Ammonium Sulphate.
Other Compound Ammonias.
Galvanism.

The motor centres in the medulla are powerfully depressed by Opium, Morphine, Aconite, Conium, Chloral, Physostigma, and large doses of Alcohol, Ether, and Chloroform. These last three are also paralyzers of the motor convolutions in the brain, arresting all voluntary movements when administered in sufficient quantity. The anterior cornua of the cord are greatly depressed by Physostigma, Carbolic Acid, and other agents, and the motor nerves by Conium, Methyl-Strychnine, etc., both actions resulting in paralysis of the limbs. *Curare*, even in small doses, paralyzes the end-organs of the motor nerves, and Belladonna, the compound Ammonias, Methyl compounds, etc., exercise a similar but less powerful influence. *Galvanism* is also an effective local depressant of motor activity.

Local Stimulants increase common sensibility to the extent of producing pain, chiefly by direct action upon the end-organs of the sensory nerves in the skin, though some act probably by stimulating the local circulation, as in inflammation. The principal members of this group are—

Faradism.
Heat.
Cold.
Alcohol.
Ether.
Chloroform.
Carbolic Acid.
Creosote.
Mineral Acids.
Ammonia.
Volatile Oils.
Acrid Essential Oils.
Metallic Salts.
Veratrine (at first).
Cantharis (at first).

Local Anæsthetics and Anodynes (*An*, without, *Aistheysis*, perception, *Odunay*, pain),—reduce the functions of the sensory nerves until they lose the power of receiving or conducting sensations. Some act by direct depression of the end-organs in the skin, etc., others by impairing the conductivity of the sensory nerves, while some act indirectly by reducing the local circulation. The Anodynes diminish, and the Anæsthetics destroy, for a time, the sensibility of the skin or mucous membrane. The chief agents of this class are—

Local Anodynes.	*Local Anæsthetics.*
Aconite, Aconitine.	Extreme Cold, Ice.
Belladonna, Atropine.	Ether Spray.
Opium, Morphine.	Carbolic Acid.

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* In large doses.

Local Anodynes.

Carbolic Acid.
Chloroform.
Chloral.
Veratrum, Veratrine.
Volatile Oils.
Galvanism.

Local Anæsthetics.

Ouabaïn.
Cocaine.
Erythrophlœin.
Hydrocyanic Acid.
Creosote.
Oil of Turpentine.
Iodoform.

Cerebral Excitants,—are remedies which increase the functional activity of the cerebrum, without producing any subsequent depression, or any suspension of the cerebral functions. They act partly by increasing the action of the heart and consequently the rapidity of the circulation, partly by a direct action upon the gray matter of the brain. The chief members of this group are—

Alcohol (at first).
Ammoniac.
Asafetida.
Camphor.
Cannabis.
Ammonia (inhaled).
Coffee, Caffeine.
Tea, Theine.
Guarana, Guaranine.
Coca, Cocaine.
Tobacco.
Strychnine.
Acetic Acid (inhaled).
Valerian.

Deliriants excite the functions of the higher brain to such a degree as to disorder the mental faculties, producing intellectual confusion, loss of will-power, delirium and even convulsions. They are all narcotics (though all narcotics are not deliriants), and may be listed as follows, viz.—

Belladonna.
Stramonium.
Hyoscyamus.
Alcohol.
Chloral.
Cannabis Indica.
Lupulus (at first).
Opium (at first).

Cerebral Depressants lower or suspend the functions of the higher cerebrum after a preliminary stage of excitement. Under this head may be included the Narcotics, General Anæsthetics, and several of the Antispasmodics, all acting on the cells of the convolutions; at first stimulating the brain-functions, they produce after a time stupor, coma and insensibility.

The most useful of this class are the Bromides, Zinc and Caffeine, as they also diminish reflex excitability and thus secure rest of the nervous system. Some of them are decidedly dangerous, as they may paralyze the heart or the medulla and its centres of organic life before the consciousness is much disturbed; such being Chloroform, Aconite, Opium, and the irritant poisons, also Carbolic Acid.

Narcotics (*Narkay*, stupor),—are agents which, at first excitant to the higher brain, produce profound sleep, characterized by stupor, and if the dose be sufficient, coma, insensibility and death by paralysis of the medullary centres governing respiration and other functions of organic life. They are closely related to the stimulants, Opium and Alcohol being good illustrations, in the different stages of their action, of both stimulant and narcotic effects. The action of Alcohol particularly exemplifies the three great Laws of Drug-Action, viz.—That all stimulation reacts into depression,—that most agents which at first stimulate the nerve centres afterwards depress and finally paralyze them,—and that when drugs so affect the functions progressively, they do so in the inverse order of their development, the highest or latest developed function being affected first, the lowest or oldest last. [See the article ALCOHOL in Part I.]

These agents give us the power of lowering perception, inducing sleep and soothing the vital functions by rest, all of which are means of great therapeutical value. The chief narcotics are—

- Alcohol.
- Opium, Morphine.
- Belladonna, Atropine.
- Hyoscyamus.
- Stramonium.
- Humulus.
- Cannabis Indica.
- Chloroform, Ether, etc.
- Chloral-hydrate.
- Croton-chloral.

Hypnotics (*Heupnos*, sleep),—are remedies which produce sleep, and in this wide sense of the term the class would include the Narcotics and the Anæsthetics, as well as those agents which may be termed *Pure Hypnotics*, which induce sleep by bringing the brain into a favorable condition therefor, rather than by direct soporific action. In this sense the purest hypnotics are the Bromides, but artificial sleep may be produced by many other agents. The principal members of this class are the following:—

- Bromides.
- Monobromated Camphor.
- Chloral-hydrate.
- Chloralamid.
- Croton-chloral.
- Cannabis, Cannabin.
- Opium, Morphine, Narceine.
- Paraldehyde.
- Hyoscyamus.
  - Hyoscine.
- Sulphonal.
- Trional.
- Tetronal.
- Urethan.
- Hypnone.
- Methylal.
- Humulus.
- Lettuce.
- Amylene Hydrate.
- Piscidia Erythrina.
- General Anæsthetics.

Analgesics or Anodynes (*An*, without, *Algos*, pain, *Odunay*, pain),—are remedies which relieve pain either by direct depression of the centres of perception and sensation in the cerebrum, or by impairing the conductivity of the sensory nerve fibres. Opium is the most efficient of all analgesics, because it arrests the afferent impressions at every step of their track—at their formation, along the course of their conduction, and at the point where they impinge on the sensorium. *The Local Anodynes* have been described, and the list of *General Anodynes* includes the following-named agents, viz.—

- Opium, Morphine.
- Belladonna, Atropine.
- Cannabis Indica.
- Stramonium.
- Hyoscyamus.
- Gelsemium.
- Antipyrin.
- Acetanilid.
- Phenacetin.
- Phenocoll.
- Exalgin.
- Aconite.
- Chloroform, Ether, etc.
- Conium.
- Chloral-hydrate.
- Croton-chloral.
- Lupulus.

Anæsthetics (*An*, without, *Aisthaysis*, perception),—are agents which destroy sensation. *Local Anæsthetics* have been described. *General Anæsthetics* are certain volatile substances, mostly belonging to the classes of alcohols and ethers, which when inhaled produce complete unconsciousness and loss of sensation (anæsthesia), with lessened motor power. Narcotics also produce anæsthesia, but this term is usually restricted to the effects of the volatile agents referred to above. The principal members of this group are—

Ether (Ethyl Oxide).
Methylene Bichloride.
Ethylene Bichloride.
Nitrous Oxide.
Chloroform.
Chlorinated Ethyl Chloride.
Ethyl Bromide.
Pental (Tri-methyl-ethylene).

The list of General Anæsthetics also includes many other substitution products derived from alcohols and ethers.

Antispasmodics (*Anti*, against, *Spasmos*, a spasm),—are agents which prevent or allay spasm of voluntary or involuntary muscles in any portion of the organism. Some of the agents belonging to this class act by stimulation of the higher nervous centres, the coördinating power, and the circulation, as Alcohol and Ether in small doses, Camphor, Musk, Valerian, etc.; others by a depressant influence on the motor centres, as the Bromides, and still others by paralysis of the end-organs of the vaso-motor nerves, as Amyl Nitrite. A few depress all the vital functions, as Aconite, Tobacco, Lobelia, Hellebore, and Prussic Acid; and a long list stimulate the bowels to expel gaseous accumulations, namely, Asafetida, Cajuput, Valerian, Musk, Aromatic Oils, etc. They are used in convulsive affections, especially asthma and other spasmodic diseases of the respiratory organs, hysteria, chorea, angina pectoris, epilepsy, etc. The principal antispasmodics are as follows, viz.—

Alcohol.
Ether.
Chloroform.
Amyl Nitrite.
Nitrites.
Bromides.
Potassium Iodide.
Potassium Nitrate.
Arsenic.
Valerian.
Conium.
Aconite.
Lobelia.
Tobacco.
Hellebore.
Opium.
Belladonna.
Stramonium.
Hyoscyamus.
Hydrocyanic Acid.
Physostigma.
Curare.
Ammoniac.
Castor.
Musk.
Galbanum.
Sumbul.
Ipecacuanha.
Senega.
Silver Salts.
Zinc Salts.
Copper Salts.
Asafetida.

The Cerebellum is affected by a few drugs, their action upon its several lobes producing various disturbances of equilibrium.

Alcohol is the principal agent acting upon this portion of the brain, and different products of the still seem to affect different portions of the cerebellum. For instance, intoxication by wine or beer is said to cause lateral falling, that by whiskey an inclination to fall face downwards, cider a backward tendency (Brunton). *Apomorphine* in large doses produces a tendency to move in a circle, and therefore probably affects the cerebellum or the corpora quadrigemina.

AGENTS ACTING ON THE ORGANS OF SPECIAL SENSE.

Mydriatics (*Meudos*, moisture),—are agents which produce dilatation of the pupil of the eye (mydriasis). Some act locally, others when given internally, and the principal ones (Atropine and its congeners) act both locally and internally, producing at the same time paralysis of the ciliary muscle resulting in temporary loss of accommodation, the eye remaining focussed for distant objects, and the intra-ocular tension being increased. The principal mydriatics are the following named,—

- Atropine.
- Belladonnine (internally only).
- Hyoscyamine.
- Daturine.
- Duboisine.
- Homatropine.
- Gelsemine (locally only).
- Muscarine.
- Cocaine.
- Anæsthetics (at last).

The dilating action of *Atropine* and its congeners is due to stimulation of the end-organs of the sympathetic nerve, increasing the power of the radiating muscular fibres of the iris, and also to paralysis of the end-organs of the motor oculi (3d cranial) nerve, lessening the power of the circular fibres or sphincter iridis. When administered internally the drug is carried by the circulation to the eye, acting thereon locally as if instilled directly upon the conjunctiva. *Cocaine* acts by stimulating the terminations of the sympathetic. *Anæsthetics* produce mydriasis late in their action, which is central. Atropine, Duboisine and Homatropine are the mydriatics used by ophthalmologists.

Myotics (*Meuo*, I close),—are agents which produce contraction of the pupil. The alkaloid *Physostigmine* (Eserine) is the chief local myotic, and the only one used in ophthalmic practice. It acts by stimulating the circular muscular fibres of the iris, at the same time contracting the ciliary muscle so that the eye is accommodated for near objects only, and diminishing intra-ocular tension; in all of which it exactly antagonizes the action of Atropine.

Muscarine, Pilocarpine and Nicotine are also local myotics, acting upon the end-organs of the oculo-motor nerve. Anæsthetics in the early stage of their action cause contraction of the pupil by lessening reflex action; later, when they begin to paralyze respiration the accumulation of venous blood irritates the centres and produces dilatation, which during anæsthesia is a sign of failing respiratory power. The myotic action of *Opium* is of central origin, probably paralysis of the local reflex excitability. The chief myotics are as follows:—

- Physostigma, Eserine.
- Opium, Morphine.
- Pilocarpus, Pilocarpine.
- Muscarine.
- Gelsemine (internally).
- Carbolic Acid (internally).
- Lobeline (internally).
- Nicotine (locally).
- Anæsthetics (at first).

Accommodation is impaired or paralyzed by the following named drugs, acting upon the ciliary muscle, viz.—

- Atropine.
- Daturine.
- Hyoscyamine.
- Homatropine.
- Physostigmine.
- Pilocarpine.
- Cocaine.
- Gelsemine.

Intraocular tension is increased by Atropine (large doses), Hyoscyamine and Daturine; and is decreased by Physostigmine and by Cocaine. Gelsemine paralyzes the external ocular muscles, especially the levator palpebræ and external rectus, by its action on the terminal nerve filaments.

The Sensibility of the Eye is increased by Strychnine, the field of vision becoming extended, and the vision rendered more acute. If the drug be administered hypodermically the improvement will be more marked in the eye corresponding to the side of the body where the injection was made.

The sensibility for color is affected by drugs, *Strychnine* increasing the field for blue, *Eserine* diminishing it for red and green, and *Santonin* causing objects to appear at first of a violet and afterwards of a greenish-yellow color.

Visions are produced by several drugs, their action being probably on the cerebral sight-centres (angular gyrus and occipital lobes) rather than on the eye. Alcoholic delirium is a familiar instance, while *Cannabis Indica* often causes pleasant visions, and *Sodium Salicylate* in some persons produces very disagreeable ones. *Digitalis* may produce subjective sensations of the continued presence of light. *Bromides* in excess may produce visions of such intensity that their subject remembers them distinctly for years afterwards.

Amblyopia, or impairment of vision from nerve-changes, is produced temporarily by Quinine, and may be permanently induced by Tobacco, Alcohol, Lead and Urea.

The Ear is affected by several drugs. *Strychnine* and *Morphine* increase the excitability of either the auditory nerve or the centre for hearing (superior temporo-sphenoidal convolution), making that faculty much more acute. *Quinine, Antipyrine* and *Salicylates* produce hyperæmia of the auditory apparatus, causing subjective noises, as humming, buzzing or ringing, which are very unpleasant. *Hydrobromic Acid* and the *Bromides,* also *Ergot,* will diminish the congestion and to a great extent will neutralize or prevent these noises.

Quinine in large doses is believed by some to have produced permanent injury of the sight and the hearing, but authentic cases of such action are extremely rare, if indeed they can be found at all. Temporary deafness is often caused by Quinine, but it usually disappears soon after the administration of the drug is stopped.

The Sense of Smell is also increased by *Strychnine*, and decreased by all cerebral depressants and by those agents which produce changes in the nasal mucous membrane, *e. g.*, *Potassium Iodide.*

The cerebral centre for this faculty is situated at the tip of the temporo-sphenoidal lobe, and the terminal branches of the olfactory nerve are distributed upon the mucous lining of the upper portion of the nasal fossæ. Strychnine probably stimulates the former, and all drugs acting upon the latter region would have more or less effect upon the power of distinguishing smells.

The Taste is not much affected by drugs except as each makes its peculiar impression on the nerves of taste, and may overcome that of another agent. Smell has much to do with taste in many instances, the expedient of holding the nose while swallowing Castor Oil being familiar to every one.

The "after-taste" of drugs is often different to their original taste; thus Bitters are said to leave a sweet after-taste, and the same is claimed for *Quinine* if given in acid solution so as to be entirely dissolved, and if washed out of the mouth with water immediately after swallowing. Substances which are excreted from the system in the saliva (as Iodides) leave a very persistent after-taste.

AGENTS ACTING ON RESPIRATION.

The Respiratory Centre is situated in the medulla oblongata, close to the termination of the calamus scriptorius. It probably consists of thoracic and diaphragmatic *Inspiratory* centres, the act of expiration being considered normally a passive one, due to the natural contraction of the walls of the air-vesicles, and the return of the diaphragm and thoracic walls to the position from which they were moved by the inspiratory effort. An *Expiratory Centre* must also exist for the initiation of forced expiration, as in the production of voice, cough, sneezing, etc. The chief *Inspiratory Nerves* are the pulmonary branches of the vagus. *The Expiratory Nerves* are the nasal branches of the fifth, the superior and inferior laryngeal, and the cutaneous nerves of the chest and abdomen.

Respiratory Stimulants exalt the function of the respiratory centre, quickening and deepening the breathing. Such agents, besides Opium in small doses, are—

Chloralamid.
Strychnine.
Atropine.
Duboisine.
Brucine
Thebaine.
Apomorphine.
Emetine.
Digitalis.
Zinc salts.
Copper salts.
Ammonia.
Quebracho.
Tobacco (briefly).
Alcohol (briefly).
Ether (briefly).

Strychnine also stimulates the vagus tract. *Electricity* applied to the nerve-trunks or to the inspiratory muscles, is a direct respiratory stimulant. *Veratrine*, *Eserine*, and *Muscarine* stimulate the vagus terminations, quickening the respiration, but afterwards slow it by depressing the respiratory centre. *Aconite* stimulates the end-organs of the vagus when given in small doses.

Respiratory Depressants lower the activity of the respiratory centre, rendering the respirations slow and shallow. The chief agents of this class are—

Cold.
Opium.
Physostigma.
Muscarine.
Lobeline.
Gelsemium.
Aconite.
Veratrine.
Hydrocyanic Acid.
Conium.
Alcohol.
Ether.
Chloroform.
Chloral.
Saponin.
Caffeine.
Colchicine.
Nicotine.
Quinine.
Camphor.
Carbolic Acid.

The eleven last named first excite the centre for a brief period and then depress it.

Pulmonary Sedatives diminish cough and dyspnœa by lessening the irritability of the respiratory centre or the nerves of respiration. Some act by directly depressing the respiratory centre, as those enumerated under the preceding head; others by removing some irritant from the passages, or by lessening local congestion, as the expectorant group; and others by lowering the excitability of the vagus end-organs in the lungs, and of other afferent filaments throughout the respiratory tract.

Opium has the most powerful influence as a sedative to the respiratory centre, and mucilaginous or saccharine substances soothe the local irritation, hence the latter are so frequently used as vehicles for the former in cough-mixtures. *Hydrocyanic Acid* has a similar sedative action, hence the use in coughs of Prunus Virginiana and other substances containing it. *Belladonna* stimulates the respiratory centre, but at the same time lessens the excitability of the vagus terminations in the lungs, and completely arrests secretion from the bronchi. *Stramonium* acts similarly. The principal pulmonary sedatives may be enumerated as follows :—

Opium.
Belladonna.
Stramonium.
Hyoscyamus.
Hydrocyanic Acid.
Amyl Nitrite.
Quebracho.
Cannabis.
Turpentine.
Ethyl Iodide.
Conium.
Tobacco.

Errhines and Sternutatories (*En*, in, *Rhin*, the nose; *Sternuto*, I sneeze),—are agents which produce increased nasal secretion and sneezing, when locally applied to the mucous membrane of the nose. The first term is usually applied to substances which cause increase of the mucus without sneezing, the latter to those which invariably produce sneezing. The drugs should be in powder for application. The stimulus produced by these agents is transmitted by the nasal branches of the fifth nerve to the respiratory centre, exciting the sudden and forcible expiratory effort called sneezing; also to the vaso-motor centre, contracting the smaller vessels throughout the body and producing a general rise in the blood-pressure. The principal agents of this class are—

Tobacco, as snuff.
Ipecacuanha.
Sanguinaria.
Veratrum Album.
Euphorbium.
Sassy Bark.
Saponin.
Ginger.
Capsicum.
Hellebore.
Ammonia.
Cubebs.

The last two named may be used as simple Errhines, as the vapor of dilute Ammonia-water or the smoke of burning Cubebs do not excite sneezing generally.

Expectorants (*Ex*, out of, *Pectus*, the breast),—are remedies which modify the secretion of the broncho-pulmonary mucous membrane, and promote its expulsion. They may be divided into—

Nauseating Expectorants,—in large doses act mechanically by expelling the mucus in the act of vomiting, in small doses by increasing osmosis from the inflamed mucous membrane. The members of this subdivision generally increase secretion and tend to lower the blood-pressure. The chief of them are the following named :—

Antimony, Tartar Emetic.
Ipecacuanha, Emetine.
Pilocarpus (Jaborandi).
Apomorphine.
Quebracho.
Alkalies.
Potassium Iodide.
Lobelia.
  Lobeline.

Stimulant Expectorants,—are largely eliminated by the bronchial mucous membrane, which they stimulate, altering the secretion and facilitating expectoration. These remedies generally diminish secretion and increase blood-pressure. They are—

Ammonium Chloride.
Ammonium Carbonate.
Benzoin and Benzoic Acid.
Balsams of Peru and Tolu.
Wood Tar, and Tar.
Oleum Pini Sylvestris.
Acids.
Squill.
Garlic.
Onion.
Turpentine.
Sulphur.
Nux Vomica.
  Strychnine.
Senega.
  Saponin.
Liquorice.
Saccharine Substances.

Besides the above many other remedies may act as expectorants, some by relieving bronchial spasm, as Opium, Stramonium and Tobacco,—others by soothing the irritable respiratory centre, as Opium and Chloral,—and the ciliary excitants by reflex action through their impression on the nerves of the mouth.

Ciliary Excitants,—promote the expectoration of bronchial mucus by their reflex excitation of the tracheal and bronchial cilia, when dissolved in the mouth. Gum Acacia, Ammonium Chloride, Potassium Chlorate, and native Chloride of Sodium have this action.

AGENTS ACTING ON THE CIRCULATION.

Cardiac Stimulants rapidly increase the force and frequency of the pulse in depressed conditions of the cardiac apparatus. One of the most useful agents of this class is *Alcohol* in some form, its action being largely due to a reflex influence excited through the nerves of the mouth and stomach. It should therefore be given in but slightly diluted form, and in small quantities frequently. *Ether* is next in value and still more rapid in action, and *Heat* is one of the most powerful and available of the class. *Ammonia* has an energetic action as a stimulant to the vaso-motor centre, as well as a reflex one upon the heart similar to that of Alcohol. The list of cardiac stimulants includes the following, viz. :—

Alcohol.
Ammonia.
Atropine.
Nitroglycerin.
Hydrastinine.
Cocaine.
Ether.
Chloroform.
Heat.
Continuous Galvanic Current.
Counter-irritation.
Sparteine.
Camphor.
Aromatic Oil.
Turpentine.
Opium and Morphine, in small doses.

Cardiac Tonics, when given in moderate doses, stimulate the cardiac muscle, slowing and strengthening its contractions. In large doses they are apt to produce irregular action of the heart, and some of them have more or less of a tendency to cause sudden death by syncope if pushed to any great extent. The most important of these agents are—

Digitalis.
Convallaria.
Cimicifuga.
Sparteine.
Squill.
Erythrophlœin.
Caffeine.
Saponin.
Strophanthus.
Strychnine.
Helleborein.
Adonis vernalis.

Digitalis acts partly by stimulation of the vagus end-organs in the heart, thus increasing cardiac inhibition, and partly by direct stimulation of the cardiac centre in the medulla, as well as by a direct influence on the heart muscle itself. *Convallaria*, *Erythrophlœum*, *Squill*, and *Cimicifuga* act similarly but less powerfully, and are correspondingly safer. *Strophanthus* is still better, as it does not affect the vessels, and therefore does not raise the blood-pressure.

Cardiac Sedatives lessen the force and the frequency of the heart's action and are used to control palpitation of that organ, and to slow the pulse in febrile conditions in sthenic subjects, especially when local inflammation is the exciting cause. The chief cardiac sedatives are—

Aconite.
Antimony.
Veratrum Viride.
Muscarine.
Pilocarpine.
Digitalis.
Ouabaīn.
Emetine.
Senega, Saponin.
Hydrocyanic Acid.
Potassium Salts.
Cold.

Aconite, *Veratrum*, *Muscarine*, *Pilocarpine*, *Saponin*, and *Hydrocyanic Acid* are direct cardiac poisons, depressing the heart muscle and the cardiac motor ganglia; *Muscarine* and *Pilocarpine* also stimulate the inhibitory ganglia; *Digitalis* stimulates the vagus centre and the cardiac muscle, and acts as a sedative in many cases by slowing the rate and giving it a regular rhythm. *Aconite* is said by some authorities to relax inhibition, by others to stimulate the vagus centre. *Antimony* depresses the motor ganglia, *Potassium* the cardiac muscle.

Vascular Stimulants produce dilatation of the peripheral vessels, and increase the rapidity of the circulation, thus equalizing the blood-pressure and preventing internal congestions. The most useful are *Alcohol* and *Ether*, as they stimulate the action of the heart simultaneously with the vascular dilatation. The chief members of this group are:—

Alcohol.
Ether.
Nitrous Ether.
Nitroglycerin.
Amyl Nitrite.
Belladonna.
Stramonium.
Hyoscyamus.
Opium (at first).
Hydrocyanic Acid.
Chloral.
Chloroform.
Liq. Ammonii Acetatis.
Ipecacuanha.
Heat, as Poultices, etc.
Tartar Emetic.

The dilating action of *Amyl Nitrite* and other Nitrites is due to weakening either of the muscular walls of the arterioles or to paralysis of the vaso-motor ganglia in them. *Alcohol*, *Ether* and *Opium* probably depress the vaso-motor centre.

Vascular Tonics produce increased contraction of the arterioles and consequently increased blood-pressure. The most important are—

Digitalis.
Squill.
Strophanthus.
Iron.
Ergot.
Opium (in small doses).
Strychnine.
Lead and Silver.
Hamamelis.

These agents act upon the local vaso-motor mechanism in the walls of the vessels, which are also directly stimulated by cold produced in any way, as by Ether spray, or evaporating lotions containing Alcohol, Vinegar or Ammonium Chloride.

Vascular Sedatives increase the contraction of the vessels and lessen the circulation through them. They are employed to check hemorrhage and to cut short a local inflammation. The chief agents belonging to this group are—

Cold.
Ergot.
Barium salts.
Zinc salts.
Hamamelis.
Digitalis.
Hydrastis.
Sulphuric Acid.
Opium.
Lead salts.
Cocaine (locally).
Antipyrin.

AGENTS ACTING ON THE DIGESTIVE SYSTEM.

Dentifrices (*Dens*, a tooth, *Frico*, I rub),—are medicated powders or pastes employed to cleanse the teeth and gums. *Chalk* is the basis generally used, for its mechanical action and its alkaline quality. Antiseptics, as *Borax*, *Quinine*, *Carbolic Acid*, etc., should also be employed so as to prevent the acid fermentation of food products between the teeth and the consequent decay of the dentine. *Tincture of Myrrh* is an excellent ingredient, being an aromatic local stimulant and disinfectant.

Many drugs affect the teeth injuriously, such being the Mineral Acids, Persalts of Iron and Alum. The first two should be taken through a glass tube, and the mouth should be afterwards rinsed with a weak alkaline wash. Opium, Chloral, Cocaine, Carbolic Acid, Creasote, Potassium Chlorate, and Aconite are the agents used as local anodynes in toothache from caries exposing a nerve filament. Chloral should never be used for this purpose, for in solution sufficiently strong to be of any service it will cause sloughing of the gum, especially if injected thereinto with a hypodermic syringe, as is frequently done by ignorant dentists.

Sialogogues (*Seealon*, saliva, *Ago*, I carry off),—are agents which increase the secretion and flow of saliva and buccal mucus, either by reflex action from the local irritation produced when anything is taken into the mouth, or by stimulating the glands during their elimination. The principal sialogogues are divided into two classes, the first (topical) acting by reflex stimulation, the second (general) acting through their systemic influence on the glands or their secretory nerves. They are as follows:—

Topical Sialogogues.	*General Sialogogues.*
Acids and Alkalies.	Pilocarpus (Jaborandi).
Ether, Chloroform, etc.	Muscarine.
Mustard, Ginger.	Physostigma.
Pyrethrum, Mezereon.	Mercurials.
Tobacco, Cubebs.	Iodine compounds.
Capsicum, Rhubarb.	Antimonials.
Horse-radish.	Tobacco, Ipecacuanha.

Antisialics (*Anti*, against, *Seealon*, saliva),—are remedies which diminish the secretions of the salivary glands. *Atropine* is the principal agent of this group, acting by paralyzing the terminations of the nerves of secretion. *Physostigma* counteracts this paralysis, but in large doses acts as an antisialic by lessening the blood supply to the glands. *Opium* diminishes the reflex excitability of the reflex centre and also diminishes the secretion. Others acting locally are—

Borax.
Potassium Chlorate.
Soda.
Lime.
Lithia.
Magnesia.
Insipid or nauseous articles of food or medicine.

Refrigerants (*Refrigero*, I cool),—are remedies which allay thirst and impart a sensation of coolness. They include the Vegetable Acids, the Mineral Acids (greatly diluted), Ice, Water if cold, Effervescing drinks, Fruit juices, and many diaphoretics.

Gastric Tonics or Stomachics,—are agents which increase the appetite and promote gastric digestion. They include a number of substances, dietetic and medicinal, some acting by stimulation of the production of gastric juice, others by stimulating the local circulation, and several by exciting the activity of the nervo-muscular apparatus of the stomach.

The first indication is met by the use of dilute alkaline solutions before meals,—the second by administering any of the pungent carminatives, as the Aromatic Oils, Pepper, Mustard, etc., or by Alcohol and Ether in small doses, or by the Aromatic Bitters, as Gentian, Orange, etc., or the simple bitters, as Calumba;—while the third desideratum is secured by the use of such agents as Nux Vomica, Hydrastis, Arsenic, the dilute Mineral Acids and the Volatile Oils.

Adjuvants to gastric digestion are the digestion-ferments, Pepsin, Ingluvin, Papain, also dilute HCl acid; which may be used to supplement the gastric juice when deficient in quantity or quality. The juice of the Pineapple contains a very active digestive principle, and may be employed as an aid to digestion with excellent results. *Pepsin* acts in acid media, and is only applicable to gastric indigestion; *Pancreatin* acts in alkaline media, is destroyed by acids, and is only applicable to intestinal indigestion; while *Papain* exercises its proteolytic power in either acid, alkaline or neutral solutions, and is equally applicable to either gastric or intestinal indigestion.

Acids,—considered therapeutically and physiologically, are medicines which in concentrated form act usually as caustics, and when given in medicinal doses internally check the secretions of organs producing acid secretions with which they come in contact, and increase those of organs producing alkaline secretions. Thus a dilute acid given before meals will check the production of the acid gastric juice, but will stimulate that of the alkaline pancreatic juice.

The chief members of this group are the following, which should be given in very dilute form:—

Acidum Aceticum.
Acidum Citricum.
Acidum Benzoicum.
Acidum Hydrochloricum.
Acidum Nitricum.
Acidum Phosphoricum.
Acidum Sulphuricum.
Acidum Nitro-hydrochloricum.

Ant-acids or Alkalies,—from the same stand-point, are remedies which neutralize acids, check alkaline secretions and stimulate acid secretions, when in contact with the ducts of the organs producing them. Thus a dilute alkali given before meals will stimulate the production of the acid gastric juice, and if applied to the mouth of the pancreatic duct will check the secretion of the alkaline pancreatic juice. The principal articles which belong to this group are the following, which should always be administered in dilute solution:—

Liquor Potassæ, Liquor Sodæ.
Carbonates and Bicarbonates of Potassium, Sodium, Lithium, Magnesium and Ammonium.
Calcined Magnesia (Magnesia).
Lime-water, Chalk.
Aromatic Spirit of Ammonia.

Potassium Acetate.
Potassium Citrate.
Potassium Tartrate.
Potassium Bitartrate.
Sodium Acetate.
Sodium Citrate.
Lithium Citrate.

The substances in the first list are direct antacids, lessening the acidity in the stomach, and many of them also acting as remote antacids, lessening the acidity of the urine, as *Potash* and *Soda*, and their Carbonates and Bicarbonates. *Ammonia* and its Carbonates after absorption are eliminated as urea, and do not lessen the acidity of the urine. The salts in the second list are remote antacids, do not lessen acidity in the stomach, but do that of the urine, being oxidized in the blood and excreted as Carbonates.

Emetics (*Eemeo,* I vomit),—are agents which produce vomiting. They may be subdivided into two groups, (1) *Local Emetics,* or those which act by irritating the end-organs of the gastric, pharyngeal or œsophageal nerves, and (2) *General or Systemic Emetics,* which act through the medium of the circulation. Both these classes produce the emetic action by irritation of the vomiting centre in the medulla, the first by reflex, the second by direct stimulation. The principal emetics are the following named :—

Local Emetics.

Alum, Mustard, Salt.
Ammonium Carbonate.
Zinc and Copper Sulphates.
Subsulphate of Mercury.
Tepid Water, in quantity.
Vegetable Bitters, as Quassia,
in strong infusions.

General Emetics.

Ipecacuanha, Emetine.
Ouabaïn.
Apomorphine.
Tartar Emetic.
Veratrine.
Senega.
Squill.

Tartar Emetic, Ipecacuanha and probably *Apomorphine,* act locally as well as systemically, for if injected subcutaneonsly they are excreted by the stomach in part, thus irritating the gastric nerves as well as the vomiting centre. *Pilocarpus* is a local emetic, and *Digitalis* and its congeners, also *Muscarine,* are systemic emetics, but none of these agents are used medicinally for that purpose. *Opium, Morphine* and *Codeine* usually produce emesis as one of their after effects.

Anti-emetics,—are agents which diminish nausea and vomiting, some by a local sedative action upon the end-organs of the gastric nerves, others by reducing the irritability of the vomiting centre in the medulla. The most efficient of the local sedatives is *Ice,* swallowed in small pieces. Astringents are very useful when there is congestion of the gastric mucous membrane, as in the vomiting of alcoholism and phthisis, where *Silver Nitrate* and *Alum* are respectively effective. The most important anti-emetics are the following, viz. :—

Local Gastric Sedatives.

Alcohol.
Alum.
Arsenic.
Belladonna.
Bismuth.
Carbonic Acid.
Cerium Oxalate.
Chloroform.
Carbolic Acid.
Potassium Nitrate.

Creosote.
Ether.
Ice.
Opium.
Hydrocyanic Acid.
Silver Nitrate.
Calomel } small
Ipecac } doses.
Hot Water.
Cocaine.

General Sedatives.

Opium.
Morphine.
Hydrocyanic Acid.
Bromides.
Chloral.
Nitro-glycerin.
Food.
Alcohol.
Amyl Nitrite.

Vomiting being set up by irritation of many afferent nerves from various regions of the body, or by impulses from the brain excited through impressions on the nerves of special sense, the measures for combating it are very diversified. (Compare the title VOMITING, in Part III.)

Gastric Pain is best treated by such local sedatives as Bismuth, Hydrocyanic Acid, or small doses of Morphine, Arsenic and Belladonna. Cocaine is one of the most efficient agents of this class, in 5 to 6 minim doses of a 4 per cent solution, every hour. As its general action is opposed to that of Opium, Bromides, etc., it must act locally, and therefore should be given by the mouth.

Carminatives (*Carmino*, I soothe),—aid the expulsion of gas from the stomach and intestines by increasing peristalsis, stimulating the circulation, and relaxing the cardiac and pyloric orifices of the stomach. They also act as diffusible stimulants, both of the bodily and mental faculties. The principal carminatives belong to the aromatic oils, alcohols or ethers, and are embraced in the following list :—

Asafetida.
Capsicum.
Cardamom.
Chloroform.
Ether.
Fennel.
Ginger.
Horse-radish.
Mace.
Mustard.
Pepper.
Spirits.
Oil of Anise.
Oil of Cajuput.
Oil of Caraway.
Oil of Cinnamon.
Oil of Cloves.
Oil of Coriander.
Oil of Eucalyptus.
Oil of Fennel.
Oil of Peppermint.
Oil of Spearmint.
Oil of Nutmeg.
Oil of Pimento.
Oil of Valerian.
Camphor.
Serpentaria.

Cathartics or Purgatives (*Kathairo, Purgo*, I cleanse),—are agents which increase or hasten the intestinal evacuations. According to their respective degrees and direction of action they are subdivided into several groups, as follows :—

Laxatives (*Laxo*, I loose), *or Aperients* (*Aperio*, I open),—include those which excite moderate peristalsis, and produce softened motions without irritation. Sulphur is the typical laxative.

Simple Purgatives;—increase peristalsis actively, and stimulate the secretions of the intestinal glands, producing one or more copious and semifluid motions with some irritation and griping. Senna is the type of this group.

Drastic Purgatives (*Drao*, I act),—act still more intensely, producing violent peristalsis and watery stools, with much griping pain, tenesmus, and borborygmi. They irritate the intestinal mucous membrane, cause exosmosis of serum from its vessels, and in large dose set up inflammation and symptoms of irritant poisoning. Jalap is a typical drastic.

Saline Purgatives,—consist of the neutral salts of metals of the alkalies or alkaline earths. They stimulate the glands, increase peristalsis, promote osmosis and cause free watery evacuations. Magnesium Sulphate is a typical saline.

Hydragogue Purgatives (*Heudore*, water, *Ago*, I bring away),—include the most active of the drastic and saline groups, those which remove a large quantity of water from the vessels. Elaterium is a typical hydragogue.

Cholagogue Purgatives (*Kohlay*, bile, *Ago*, I bring away),—are those agents which stimulate the flow of bile and produce free purgation at the same time, the stools being green-colored, or "bilious," and liquid. Podophyllin is the type of this group.

The principal Cathartics are the following named :—

Laxatives.

Sulphur.
Magnesia.
Cassia.
Manna.
Figs.
Prunes.
Tamarinds.
Honey.
Olive Oil.
Cascara Sagrada.
Physostigma.
Ergot.
Belladonna.
Stramonium.
Hyoscyamus.
Soap.
Almond Oil.
Taraxacum.
Glycerin.
Oatmeal.
Bran Biscuit.
Brown Bread.

Simple Purgatives.

Senna.
Aloes.
Rhubarb.
Castor Oil.
Rhamnus Frangula.
Ox-gall.
Calomel.
Small doses of drastics, salines or cholagogues.

Saline Purgatives.

Magnesium Sulphate.
Magnesium Citrate.
Potassium Sulphate.
Potassium Tartrate.
Potassium Bitartrate.
Sodium Sulphate.
Sodium Phosphate.
Sodium Chloride.
Pot. et Sodium Tartrate.
Manganese Sulphate.

Drastics.

Jalap.
Colocynth.
Elaterium.
Scammony.
Gamboge.
Croton Oil.
Cathartic Acid, hypodermically.

Hydragogues.

Elaterium.
Gamboge.
Potassium Bitartrate.
Croton Oil.
Salines in large doses.

Cholagogues.

Mercurials.
Aloes.
Rhubarb.
Euonymin.
Podophyllin.
Iridin.

Intestinal Astringents, contract the walls of the intestinal vessels, diminishing the exudation therefrom, and lessening the fluidity of the fæcal discharges. The more powerful members of this group have also a *constringing* action on the intestinal mucous membrane. The principal agents of this class are the following :—

Astringents.

Phosphoric Acid. } Diluted.
Nitric Acid. } Diluted.
Sulphuric Acid. } Diluted.
Acetic Acid. } Diluted.
Lead Acetate.
Silver Nitrate.

Constringents.

Tannic Acid.
Vegetable Astringents.
Alum.
Zinc Oxide.
Copper Sulphate.
Persalts of Iron.

Hepatic Stimulants and Cholagogues (*Kohlay*, bile, *Ago*, I bring away),—are two groups of agents acting upon the biliary secretion, the first-named increasing the functional activity of the liver and the amount of bile formed, the second removing the bile from the duodenum and preventing its reabsorption into the portal circulation. Some hepatic stimulants are also cholagogues, others are not, while cholagogues proper generally act as hepatic stimulants by carrying off the bile and so indirectly urging the liver to secrete more. The discovery of the entero-hepatic circulation of bile has cleared up many of the discrepancies formerly existing with regard to the action of drugs upon this gland and its secretion. The following list includes the principal drugs belonging to both groups:—

Hepatic Stimulants.		*Cholagogues.*
Aloes.	Potassium Sulphate.	Aloes.
Podophyllin.	Sodium Sulphate.	Podophyllin.
Mercuric Chloride.	Bicarbonate.	Mercurous Chloride.
Sodium Benzoate.	Ammonium Benzoate.	Pil. Hydrargyri.
Phosphate.	Chloride.	Mercury with Chalk.
Salicylate.	Nitric Acid (dilute).	Sodium Phosphate.
Nitro-hydrochloric Acid.	Benzoic Acid.	Sulphate.
Euonymin.	Baptisin.	Potassium Sulphate.
Iridin.	Hydrastin.	Colchicum.
Phytolaccin.	Juglandin.	Colocynth.
Sanguinarin.	Leptandrin.	Rhubarb.
Antimony.	Jalapin.	Arsenic.
Arsenic.	Scammony.	Euonymin.
Ipecacuanha.	Guaiac.	Scammony.
Colchicine.	Sarsaparilla.	Baptisin.
Colocynth.	Physostigma.	Jalapin.
Rhubarb.	Rochelle Salt.	Iridin.

Those in the first column are the most powerful of the stimulant group, the second column including the less efficient agents. To secure the best cholagogue effect it is advisable to combine an hepatic stimulant with an intestinal stimulant which shall produce increased secretion from the intestinal mucous membrane and excite peristalsis.

The Glycogenic Function of the liver, and the production of urea are stimulated by the following-named drugs:—

Increasing Glycogen.	*Increasing Urea.*	
Amyl Nitrite.	Arsenic.	Iron.
Sodium Bicarbonate.	Antimony.	Phosphorus.
Nitro-hydrochloric Acid.	Ammonium Chloride.	

Hepatic Depressants are agents which lower the functional activity of the liver, reducing the quantity of bile secreted, and lessening the production of glycogen and urea. They are as follows, viz.:—

Lessening Bile.	*Diminishing Glycogen.*	*Lessening Urea.*
Opium. Morphine.	Opium.	Opium.
Many Purgatives.	Morphine, Codeine.	Morphine.
Lead Acetate.	Phosphorus.	Colchicum.
Quinine (?)	Arsenic.	Alcohol.
Alcohol (?)	Antimony.	Quinine.

Many purgatives act as hepatic depressants and diminish the secretion of bile by lowering the blood pressure in the liver, and by carrying off the materials from which bile might be formed.

Pancreatic Stimulation may be obtained by the administration of *Ether*, or by Galvanism of the gland itself. The secretion is depressed by *Atropine* and by inducing nausea and vomiting.

Anthelmintics (*Anti*, against, *Helmins*, a worm),—are agents which destroy (vermicides) or cause the expulsion of intestinal worms (vermifuges). The chief vermifuges are Castor Oil, Jalap and Scammony, while the vermicides may be enumerated as follows, viz.:—

Thread Worms (*Oxyuris Vermicularis*).	*Round Worms* (*Ascaris Lumbricoides*).	*Tape Worms* (*Tæniæ, etc.*).
Alum.	Santonica.	Filix Mas.
Sulphate of Iron.	Santonin.	Kamala.
Lime Water.	Spigelia.	Kousso.
Quassia.	Chenopodium.	Granatum.
Eucalyptol.	Azedarach.	Pelletierine.
Sodium Chloride.	Senna. } with the	Pepo.
Tannin.	Calomel. } above.	Turpentine.
Veg. Astringents.	Naphtalin.	Chloroform.
Naphtalin.		Naphtalin.

The substances enumerated in the first column are all used locally by enema. *Adjuncts* to these remedies are such agents as prevent the excessive secretion of intestinal mucus, which affords a nidus for the worms. Such are Bitter Tonics and preparations of Iron, also Ammonium Chloride and Sodium Chloride.

AGENTS ACTING ON METABOLISM.

Restoratives,—are agents which promote constructive metamorphosis, including the Foods, Hæmatics, and Tonics, as well as many agents called Stimulants in other classifications.

Foods,—are substances which, when introduced into the body, supply material to renew some structure or to maintain some vital process; being distinguished from medicines in that the latter modify some vital action but supply no material to sustain such.

The food of man is derived from all three of the kingdoms of nature, viz., the mineral, vegetable and animal, and includes many substances treated of in the Materia Medica, as Oils and Fats, Sugar, Starch, Gum, Alcohol, Beverages like Coffee and Tea, Water, Phosphate of Lime, Sodium Chloride, etc.

Hæmatics (*Haima*, the blood),—are medicines which augment the quantity of hæmatin in the blood, and thus restore the quality of that tissue by enriching its red corpuscles. They consist chiefly of Iron and Manganese and their compounds.

Tonics (*Tonnos*, tension),—are agents which improve the tone of the tissues on which they have specific action, restoring energy and strength to debilitated subjects, by a scarcely perceptible stimulation of all the vital functions, their effects being apparent in an increased vigor of the entire system. The chief tonics are enumerated in the foregoing lists under the heads of the organs, or tissues particularly affected by them. (Compare the titles STIMULANTS, RESPIRATORY STIMULANTS, CARDIAC TONICS, VASCULAR TONICS, GASTRIC TONICS, etc.)

The most typical medicinal agents which impart a general sense of tone and strength are Strychnine, Quinine, Iron and Vegetable Bitters. Those especially acting upon the stomach, are Arsenic, Bismuth, Cinchona, Hydrastis and Nux Vomica,—on the spinal cord and general circulation, Strychnine,—on the heart, Digitalis, Squill, Convallaria and Cimicifuga,—on the nervous system, Phosphorus, Quinine and the Valerianates,—on muscular tissue, Tannin,—on the blood, Iron, Manganese, Cod-liver Oil, and other fats.

Alteratives,—are certain remedies which *alter* the course of morbid conditions in some way not yet understood, perhaps by promoting metabolism. They certainly modify the nutritive processes and thereby cure many diseases of chronic type. *Mercury* and *Iodine* are the most prominent agents of this class, the former being endowed with the power of breaking up newly deposited fibrin, and disorganizing syphilitic deposits, while the latter acts energetically upon the lymphatic system and promotes absorption. *Arsenic* also is almost specific in many chronic skin affections, and has remarkable power over chronic pulmonary consolidations, probably producing fatty degeneration and softening of the effusion, so that it may be absorbed or expectorated. The principal alteratives are:—

Arsenic.
Antimony.
Aurum.
Mezereum.
Sulphur.
Sulphides.
Mercury.
Colchicum.
Guaiacum.
Sanguinaria.
Xanthoxylum.
Calcium Chloride.
Iodine.
Iodides.
Stillingia.
Sarsaparilla.
Cod-liver Oil.
Phosphorus.

Certain therapeutists of laboratory type have, of late years, seen fit to denounce the term *Alterative* as "a cloak for ignorance," but have never been able to present a better designation for a class of agents whose effects are among the most thoroughly established of clinical facts.

A subdivision may be made of the *Resolvents* or *Discutients* (*Resolvo*, I unbind, *Discutio*, I dissipate),—agents which promote the absorption of inflammatory products or other materials of morbid origin, apparently by stimulation of the lymphatic system. They include Mercury, Arsenic, Iodine, and Cadmium, as well as such local measures as Poulticing and Counter-irritation.

Destructive Metamorphosis of the tissues is promoted by a number of agents, most of which are classed as *Alteratives* or as *Astringents*, the most important of which are the following-named:—

Alkalies.
Vegetable Acids.
Metals and their salts.
Colchicum.
Sulphides and Iodides.
Sarsaparilla.
Stillingia.
Xanthoxylum.
Tannic and Gallic Acids, and substances containing them.

Destructive Metamorphosis may be diminished by many substances, the following-named being the chief ones:—

Alcohol.
Glycerin.
Oils and Fats.
Salicin.
Salicylates.
Quinine.
Resorcin.
Chinolin.
Cocaine.

Antipyretics (*Anti*, against, *Peuretos*, fever),—are agents or measures which reduce the body-temperature when abnormally high. This may be done by two principal methods, and the agents doing either accomplish the result by different actions, as follows, viz.:—

By Lessening the Production of Heat, by
- 1. Diminishing tissue-change.
- 2. Reducing the circulation.

or by

Promoting the Loss of Heat, by
- 3. Dilating cutaneous vessels, and producing increased radiation.
- 4. Producing perspiration, and its evaporation.
- 5. Abstracting heat from the body.

The following list contains nearly all the antipyretics, the number following each referring to its proper method of action, as enumerated above :—

Quinine.^{1}
Quinidine.^{1}
Cinchonine.^{1}
Cinchonidine.^{1}
Berberine.^{1}
Benzoic Acid.^{1}
Carbolic Acid.^{1,3}
Picric Acid.^{1}
Salicin.^{1}
Salicylic Acid.^{1}
Sodium Salicylate.^{1,4}
Quinine Salicylate.^{1}
Methyl Salicylate.^{1}
(Oil of Gaultheria.)
Trimethylamin.^{3}
Acetanilid.^{1,4}

Chinolin.^{1}
Resorcin.^{1}
Kairin.^{1,4}
Kairolin.^{1,4}
Antipyrin.^{1,4}
Hydroquinon.^{1}
Thallin.^{1,4}
Pyrocatechin.^{1}
Pheno-resorcin.^{1}
Camphor.^{1}
Eucalyptol.^{1}
Thymol.^{1}
Other Essential Oils.^{1}
Alcohol.^{1,3}
Digitalis.^{2}
Salol.^{1}

Phenacetin.^{1,4}
Aconite.^{2}
Antimonials.^{2,4}
Veratrine.^{2}
Colchicum.^{2}
Leeching.^{2}
Cupping.^{2}
Blistering.^{2}
Poulticing.^{2}
Nitrous Ether.^{3,4}
Dover's Powder.^{4}
Cold Bath.^{5}
Cold Drinks.^{5}
Ice to Surface.^{5}
Cold Sponging.^{5}
Wet Packing.^{5}

Purgation and Venesection produce antipyretic results, but their mode of action is doubtful (Brunton).

The Body Temperature is raised by *Belladonna* (or Atropine) and by *Cocaine*, but not to such a degree as to constitute fever or enable them to be classed as pyretics. *Tuberculin*, various albumoses, and certain animal poisons, as that of shell fish, will also produce a rise of temperature.

Antiphlogistics (*Anti*, against, *Pfleggo*, I burn),—are measures and medicines which are supposed to have some specific power in reducing inflammation. The term is becoming obsolete, but frequent references are seen yet to the influence of Mercury and Opium in inflammations of serous membranes, Antimony and Aconite in inflammations of the respiratory tract and organs, and to the power of Veratrum Viride over puerperal metritis. The chief antiphlogistics are the following :—

Aconite.
Veratrum Viride.
Tartar Emetic.
Mercury.
Opium.
Gelsemium.

Digitalis.
Ergot.
Ipecacuanha.
Potassium Nitrate.
Rest, recumbent position.

Venesection.
Local Depletion.
Purgation.
Counter-irritation.
Cold.

Antiperiodics,—are remedies which affect certain periodical febrile diseases, lessening the severity of their paroxysms or preventing their return. They act probably by arresting the development in the blood of successive crops of pathogenic organisms, upon which the disorders are supposed to depend. The principal antiperiodics are :—

Cinchona Bark and its Alkaloids.
Bebeeru Bark and its Alkaloid.
Salicin, Salicylic Acid, Salicylates.

Arsenic.
Eucalyptol.
Iodine.

AGENTS ACTING UPON EXCRETION.

Diuretics (*Deeouraysis*, urination),—are remedies which increase the renal secretion. They may act in several ways, namely:—

1. By raising the general blood-pressure by contraction of efferent vessels or vessels in other regions of the body.
2. By dilating the renal arteries and increasing the renal blood-supply, raising the pressure in the glomeruli.
3. By stimulating the secreting nerves or cells of the kidney.
4. By simply washing out the kidneys, as by *Water* in quantity.

The following list contains the most important agents of this class, which are usually subdivided into the two groups indicated by the sub-titles. The numbers refer to the modes of action of the drug in the above synopsis:—

Refrigerant Diuretics.

Potassium Acetate.^{3}
Potassium Bitartrate.^{3}
Potassium Citrate.^{3}
Potassium Chlorate.^{3}
Potassium Nitrate.^{3}
Sodium Acetate.^{3}
Calomel.^{1}
Digitalis.^{1}
Erythrophlœum.^{1}
Caffeine.^{3}
Theobromine.^{3}
Broom.^{3}
Squill.^{1,2}
Nitrites.^{2}
Colchicum.^{3}
Strychnine.^{1}
Stigmata Maidis ^{1,2}

Stimulant Diuretics.

Alcohol.^{2}
Cantharides.^{3}
Turpentine.^{3}
Juniper.^{3}
Savine.^{3}
Copaiba.^{3}
Cubebs.^{3}
Pepper.^{3}
Matico.^{3}
Kava.^{3}
Guaiac.^{3}
Parsley.^{3}
Taraxacum.^{3}
Jaborandi.^{3}
Dulcamara.^{3}
Bryonia.^{3}

Gin.^{2}
Carrot.^{3}
Fennel.^{3}
Mustard.^{3}
Asparagus.^{3}
Uva Ursi.^{3}
Buchu.^{3}
Sarsaparilla.^{3}
Pareira.^{3}
Chimaphila.^{3}
Santonica.^{3}
Lobelia.^{3}
Aconite.^{3}
Tobacco.^{1,3}
Volatile Oils.^{3}
Oleo-resins.^{3}

Diuretics are employed for the following purposes, namely, (1) to remove the excess of fluid in dropsies,—(2) to hasten the elimination of waste products and other poisonous substances from the blood,—(3) to dilute the urine. In—

Cardiac Dropsy,—or other dropsies due to venous congestion, the best diuretics are those which act on the general vascular system, as Digitalis, Squill, etc. Calomel is very efficient here, so also is Theobromine Sodio salicylate (Diuretin).

Dropsy from Renal Disease,—Diuretin, Broom, Nitrous Ether, Oil of Juniper, Digitalis and Squill are the most reliable diuretics, in the order named.

Hepatic Dropsy,—Copaiba is considered especially suitable. In this and the previous form a little Pil. Hydrargyri occasionally often aids the diuretic action of other agents.

To Eliminate Solids,—Potassium Nitrate and Bitartrate, Turpentine, Juniper, Caffeine etc., are the most efficient. [Compare ANTILITHICS.]

To Dilute the Urine,—Water is the best diuretic, and the most efficient form is Distilled Water acidified with Carbonic Acid Gas.

Renal Depressants,—are such agents as directly diminish the activity of the renal cells, and lessen or suspend the secretion of urine. Morphine, Quinine and Ergot act in this way through the circulation, and Digitalis, instead of acting as a diuretic, may arrest the renal circulation by stimulating the vaso-motor centre, and thus by contracting the vessels may stop the secretion altogether (Brunton). The same is true of Caffeine and Strychnine, hence it is well to combine these with other diuretics (Nitrous Ether, Alcohol), which dilate the renal arteries.

Alkalinizers of the Urine,—are agents which produce an alkaline reaction of the urine when taken internally. They include the alkalies, particularly Potassium and Lithium salts, but excepting Ammonia, which is broken up in the organism. Sodium salts, being partly excreted by the bile and the bronchial mucus, and partly locked up in the system as the neutral chloride, while Sodium Urate is insoluble, are not as efficient in this regard as are other alkalies. Fruits, milk and fish also act in the same manner by means of the salts which they convey into the economy.

Acidifiers of the Urine,—are Benzoic and Salicylic Acids, and several of their salts, Vegetable Acids in excess, also excess of proteids, sugar and starch in the food, and certain wines and spirits. The Mineral Acids have little or no influence on the acidity of the Urine, being excreted as neutral sulphates, chlorides, phosphates, etc.

Salol is much quicker in its action upon the urine than is Ammonium Benzoate; as, in a day or so, ordinarily, under its administration, the urine in chronic cystitis loses its alkalinity and foul odor, and becomes clear (Dr. Mansel Sympson).

Vesical Sedatives,—are substances which lessen irritability of the bladder, relieving pain and increasing the desire to micturate. Opium, Belladonna, Hyoscyamus, Stigmata Maidis, Cannabis, etc., lessen the irritability of the nerves, Calcium Carbonate that due to the presence of calculi,—and mucilaginous drinks, such as Barley-water or Linseed tea, also astringents like Buchu, Uva Ursi, Pareira, etc., diminish the irritation due to chronic cystitis, and antiseptics, as Copaiba, and Cubebs, also act in like manner.

Vesical Tonics,—increase the contractile power of the muscular fibres in the wall of the bladder. Cantharides, Potassium Bromide, Strychnine and Belladonna are the most prominent members of this class.

Urinary Sedatives and Astringents,—act sedatively upon the whole extent of the urinary tract through the medium of the urine charged with them when administered internally. Some of the members of this class may be administered locally, but only to the urethral and vesical mucous membranes, which are accessible to direct local medication.

Instances of the application of these agents are in the use of Potassium and Lithium Salts to diminish the acidity of the secretion,—Cubebs, Copaiba and Sandal-wood Oil as antiseptics and astringents,—and urethral injections of Alum, Zinc and Lead Acetates, Boracic Acid, Chloral and Zinc Chlorides, etc., for a similar purpose. *Copaiba* is one of the most efficient agents for rendering the urine antiseptic, and should be more employed in cystitis and urethritis than it is. *Oil of Eucalyptus* is nearly as efficient, and *Stigmata Maidis* (Corn Silk), in tincture, is beginning to be well thought of for a general alterative influence on the urinary tract.

Antilithics or Lithontriptics (*Anti*, against, *Leethos*, a stone, *Treebo*, I wear down),—are agents supposed to prevent the formation of concretions in the excretory passages (antilithics) or to dissolve them when formed (lithontriptics). The terms are generally restricted to remedies affecting the urinary calculi, but those directed against the biliary form are included in this arrangement for the sake of consistent classification. The chief agents coming under this title are—

Biliary Calculi.

Ether and Turpentine.
(Durande's Solvent.)
Sodium Bicarbonate.
Sodium Salicylate.
Sodium Phosphate.
Castile Soap.
Alkaline Waters, especially Vichy.

Calcium Oxalate Calculi.

Dilute Nitro-Hydrochloric Acid.
Carbonated Water.
Lactic Acid (for digestion).

Uric Acid Calculi or Urates.

Distilled Water.
Potassium Salts.
Lithium Salts.
Potassium Tartraborate.
Magnesium Citroborate.
Piperazin.
Tetraethyl-ammonium.

Phosphatic Calculi.

Ammonium Benzoate.
Benzoic Acid.
Dilute Nitric Acid.

There is probably little or no solvent value to the agents recommended for biliary calculi. In the case of Uric Acid the administration of Potash or Lithia is based on their combining with the acid forming the calculus, and forming Urate of Potassium or Lithium, which salts are more soluble than the Uric Acid itself. Piperazin is, however, still more efficient in this respect, forming a piperazin urate which is seven times more soluble than lithium urate.

Diluents (*Diluo*, I dilute),—are agents which, after their absorption, dilute the excretory fluids and enable the latter to hold more solid material in suspension. *Water* is the one true diluent, whatever form it may be disguised in, as teas, weak fluid foods, acid drinks, etc.

Diaphoretics and Sudorifics (*Deeaphorheeo*, I carry through; *Sudor*, sweat; *Facio*, I make),—are remedies which increase the action of the skin and promote the secretion of sweat. When they act energetically, so that the perspiration stands in beads upon the surface, they are known as *Sudorifics*. They may be subdivided into the following groups, viz. :—

1. *Simple Diaphoretics*, which enter the circulation and are eliminated by the sudoriferous glands, which they stimulate to increased action.
2. *Nauseating Diaphoretics*, which produce relaxation and the dilatation of the superficial capillaries.
3. *Refrigerant Diaphoretics*, which reduce the circulation, at the same time acting directly on the sweat centres in the spinal cord and medulla.

The principal diaphoretics are enumerated as follows, the figures referring to their respective supposed modes of action as indicated above, viz.:—

Jaborandi,$^{1, 2}$
Pilocarpine.$^{1, 2}$
Salicylic Acid.^{1}
Salicylates.^{1}
Ipecacuanha.^{2}
Tartar Emetic.^{2}
Sulphur.^{1}
Opium$^{2, 3}$ (large doses).
Camphor.^{1}
Tobacco.$^{2, 3}$
Cocaine.^{2}
Ether.$^{2, 3}$
Alcohol.$^{2, 3}$
Nitrous Ether.$^{2, 3}$
Ammonium Acetate.^{1}
Ammonium Citrate.^{1}
Dover's Powder.^{2}
Aconite.^{3}
Veratrum Viride.^{3}
Potassium Salts.^{3}
Mezereon.^{1}
Lobelia.$^{2, 3}$
Sarsaparilla.^{1}
Guaiacum.^{1}
Serpentaria.^{1}
Sassafras.^{1}
Senega.^{1}
Vapor Bath.^{2}
Turkish Bath.^{2}
Wet Pack.^{2}
Warm Drinks.^{2}

Anhidrotics (*An*, without, *Heedroce*, sweat),—are agents which check perspiration. They may act—

1. By depressing the action of the sweat-glands.
2. By depressing the excitability of the sweat-centres.
3. By reducing the circulation in the skin.

The most important agents of this class are the following-named, the figures indicating their mode of action as above arranged, viz. :—

- Belladonna.^{1}
    - Atropine.^{1}
- Hyoscyamus.^{1}
- Stramonium.^{1}
- Muscarine.^{2}
- Agaricus Albus.^{2}
- Salvia (Sage).
- Acids, locally.^{3}
- Jaborandi.
- Pilocarpine.
- Nux Vomica.
    - Strychnine.
- Ergot.^{3}
- Sulphuric Acid.
- Chloralamid.
- Quinine ?
- Picrotoxin.
- Dover's Powder.
- Opium^{2} (small doses).
- Zinc Salts.^{3}
- Local Cold.^{3}

Strychnine, Atropine, Dover's Powder, Jaborandi, Picrotoxin and Zinc Salts are all respiratory stimulants, and very efficient against the sweating of phthisis, though most of them are classed as diaphoretics. This is explained on the theory of accumulation of Carbonic Acid in the blood by depressed respiration caused by severe coughing, this stimulating the sweat centres, and being opposed by agents which stimulate the respiratory centre.

AGENTS ACTING ON THE GENERATIVE APPARATUS.

Aphrodisiacs (*Aphrohdeetay*, Venus),—are medicines which stimulate the sexual appetite and power. They act by reflex or central action upon either the cerebral or the spinal genital centre. Tonics are indirectly aphrodisiac, as are all measures which promote the general bodily nutrition. The chief agents used as direct aphrodisiacs may be enumerated as follows, viz. :—

- Nux Vomica.
    - Strychnine.
- Cannabis.
- Cantharis.
- Phosphorus.
- Aurum.
- Cimicifuga.
- Serpentaria.
- Sanguinaria.
- Opium (at first).
- Camphor (at first).
- Damiana (?).
- Ergot.
- Iron.
- Alcohol.
- Bitter Tonics.
- Flagellation.
- Meat Diet.

Strychnine acts by increasing general nutrition and exalting the reflex excitability of the genital centres. *Hemp* probably only causes a mild delirium which may or may not take a sexual direction. *Cantharides* acts by direct irritation of the mucous lining of the urethra, and is dangerous in aphrodisiac doses. *Alcohol* in small doses excites the genital centre in the brain; so, also *Opium* and *Camphor*, the latter being decidedly anaphrodisiac after a time. The power of *Damiana* is doubtful. *Urtication* and *Flagellation* of the nates produce priapism by irritation of the genital centre in the cord through the sensory nerves of the part. *Ergot* is considered useful by contracting the dorsal vein of the penis, preventing its emptying too rapidly.

Anaphrodisiacs (*An*, without, *Aphrohdeetay*, Venus),—are medicines and measures which lower the sexual function and diminish the sexual appetite. They act by lessening the excitability of the nerves of the genital organs, by depressing the genital centres in the brain and cord, or by decreasing the local circulation. The principal anaphrodisiacs are enumerated as follows, viz. :—

Bromides.
Potassium Iodide.
Camphor (at last).
Opium (at last).
Lupulin.
Cocaine.
Tobacco.
Digitalis.
Conium.
Belladonna.
Stramonium.
Gelsemium.
Nauseants.
Purgation.
Venesection.
Ice, locally.
Cold Baths.
Vegetable Diet.

Emmenagogues (*Emmayneeah*, the menses; *Ago*, I move),—are remedies which restore the menstrual function, either directly by stimulation of the uterine muscular fibre, or indirectly by improving the blood and toning up the nervous system. The direct emmenagogues are *ecbolic* in large doses. The principal members of this class are enumerated in the following list, viz. :—

Direct Emmenagogues.

Ergot.
Quinine.
Savine.
Digitalis.
Cantharis.
Pulsatilla.
Asafetida.
Alcohol.
Indigo.
Hydr. Biniod.
Caulophyllum.
Tansy.
Rue.
Apiol.
Borax.
Myrrh.
Guaiacum.
Polygonum Hydrop.
Potass. Permang.
Cimicifuga.
Oxalic Acid.
Hedeoma.
Origanum.
Viscum Flavescens.

Indirect Emmenagogues.

Iron.
Manganese.
Cinnamon.
Strychnine.
Aloetic Purgatives.
Cod-liver Oil.
Hot Hip-baths.
Leeching the genitals.
Rubefacients to thighs.
Tonic Remedies.

Oxytocics or Ecbolics (*Ockseus*, quick, *Tokos*, childbirth; *Ekbolay*, abortion),—are agents which stimulate the muscular fibres of the gravid uterus to contraction, and may produce abortion. In small doses the same remedies are emmenagogue as a rule. Their mode of action has not been clearly made known, but it is generally believed to be due in some cases to direct stimulation of the uterine centre in the cord, in others to congestion of the uterus producing reflex stimulation. The principal oxytocics are those enumerated in the following list, viz. :—

Ergot.
Ustilago.
Savine.
Potass. Permanganate.
Hydrastis.
Quinine.
Borax.
Cotton-root bark.
Oil of Rue.
Pilocarpine.
Viscum Flavescens.
Strong Purgatives.

Any drastic purgative, or gastro-intestinal irritant, may produce abortion by reflex action. The *Volatile Oils* act in this manner, also *Colocynth* and many other agents used by women to produce abortion, as *Tansy*, *Pennyroyal*, *etc.*, all of which are dangerous to life in doses sufficient to excite the action of the gravid uterus.

Uterine Depressants lower the activity of the nervo-muscular apparatus which controls the uterine contractions. The most important of these agents are :—

Opium.
Bromides.
Cannabis.
Viburnum Prunifolium.
Chloral.
Chloroform.
Tartar Emetic.
Tobacco.
Sulphate of Copper.
Emetics.
Piscidia Erythrina.

Uterine Tonics and Alteratives,—are medicines which are considered to have such specific influence over the uterus. Authorities differ very much regarding the value of these agents, but those enumerated in the following list are generally considered to have considerable value in uterine therapeutics, viz. :—

Uterine Tonics.
Potassium Bromide.
Potassium Chlorate.
Pulsatilla.
Helonias Dioica.
Cimicifuga.
Savine.
Astringents (locally).

Uterine Alteratives.
Iodine.
Iodoform.
Iodized Phenol.
Glycerin.
Hydrastis.
Silver Nitrate.
Galvanism.

Those in the first list, except Astringents, are used internally; those in the second column as topical applications to the uterine cavity or cervix.

Galactagogues (*Galla*, milk, *Ago*, I bring away),—are medicines which increase the lacteal secretion, as Ricinus, Tea, Anise, Fennel, Potassium Chlorate, etc. The value of many so-called galactagogues is extremely doubtful, the best being the local application of the leaves of the *Castor-oil plant* (Ricinus communis), and a good black Tea internally, with Milk, Beer or Porter as a beverage. *Pilocarpus* comes the nearest to being a true galactagogue, but its influence is very transient. (Compare LACTATION in Part III.)

Antigalactagogues decrease the secretion of milk. *Belladonna* is the typical and most potent agent for this purpose, and acts when given internally or applied locally. *Antipyrin* has given evidence of similar power, also *Camphor* locally, and *Potassium Iodide* internally.

AGENTS ACTING ON THE CUTANEOUS SURFACE.

Irritants are substances which, when applied to the skin, produce a greater or less degree of vascular excitement. When used to produce a reflex influence on a part remote from their site, they are termed COUNTER-IRRITANTS, and may be subdivided into the following groups, viz. :—

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Rubefacients (*Rubefacio*, I make red),—produce temporary redness and congestion of the skin, unless left too long in contact with the surface, when they may cause exudation between the cuticle and the true skin (vesicants), or may destroy the tissue and form a slough (escharotics). They may induce muscular atrophy.

Vesicants, Epispastics or Blisters,—produce decided inflammation of the skin, and outpouring of serum between the epidermis and derma. Cantharides is the agent generally used for this purpose.

Pustulants,—affect isolated parts of the skin, as the orifices of the sudoriferous glands, giving rise to pustules.

The following list embraces the principal agents and measures belonging to these groups, viz. :—

Rubefacients.

- Mustard.
- Capsicum.
- Camphor.
- Ammonia.
- Mezereon.
- Arnica.
- Alcohol.
- Ether.
- Chloroform.
- Iodine.
- Menthol.

Rubefacients.

- Oil of Cajuput.
- Oil of Turpentine.
- Volatile Oils.
- Pitch.
- Friction.
- Hot Water.

Pustulants.

- Croton Oil.
- Tartar Emetic.
- Ipecacuanha.
- Silver Nitrate.

Vesicants.

- Cantharides.
- Euphorbium.
- Mezereon.
- Iodine.
- Rhus Toxicodendron.
- Ammonia (the confined vapor).
- Glacial Acetic Acid.
- Volatile Oil of Mustard.
- Heat.
  - Boiling Water.
  - Corrigan's Hammer.

Escharotics or Caustics (*Eskahrah*, a slough or scab; *Kaioh*, I burn),—are agents which destroy a tissue to which they are applied, and produce a slough. They act usually in one of three modes, viz. :—

1. By abstracting the water of the tissue.
2. By combining with the albumen of the part.
3. By corrosive oxidation.

The principal escharotics are enumerated in the following list, the numbers affixed to each pointing out its mode of action as stated above.

- Mineral Acids.[1]
- Glacial Acetic Acid.[1]
- Carbolic Acid.[1]
- Chromic Acid.[3]
- Arsenious Acid.[1]
- Antimony Chloride.[1]
- Caustic Potash.[1]
- Caustic Soda.[1]
- Lime.[1]
- Dried Alum.[2]
- Silver Nitrate.[2]
- Copper Sulphate.[2]
- Mercuric Chloride.[2]
- Mercuric Oxide.[2]
- Mercuric Nitrate.[2]
- Zinc Sulphate.[2]
- Zinc Chloride.[2]
- Bromine.[3]

Astringents (*Ad*, to, *Stringo*, I bind),—are agents which produce contraction of muscular fibre and condensation of other tissues, the first probably by direct irritation, the second by precipitating its albumen and gelatin. They also lessen secretion from mucous membranes. The principal astringents may be enumerated as follows, viz. :—

Acids.
Alcohol.
Alum.
Chalk.
Lime.
Creosote.
Carbolic Acid.
Tannic Acid.
Gallic Acid.
Catechu.
Galls.
Kino.
Oak-bark.
Uva-Ursi.
Bismuth Subnitrate, etc.
Cadmium Sulphate.
Copper Sulphate.
Ferric Chloride.
Lead Acetate.
Silver Nitrate.
Zinc Sulphate.

Sulphuric Acid, Gallic Acid and Lead Acetate are examples of *Remote Astringents*, acting on internal organs through the blood. Those which affect the part to which they are applied are *Local Astringents*, and include most of those enumerated above.

Styptics and Hemostatics (*Steuphoh*, I contract; *Haimah*, blood; *Stahsis*, a standing),—are agents which arrest hemorrhage, *Styptics* being those which are applied locally, and *Hemostatics* those which are administered internally. Some of the former act mechanically, by promoting the formation of a clot in the mouths of the bleeding vessels; others cause the vessels themselves to contract, checking the flow of blood. The principal members of this class are the following-named :—

Styptics.

Acids.
Alum.
Cautery.
Collodion.
Ferric Chloride.
Ferric Sulphate.
Silver Nitrate.
Cold.
Matico.
Spider's-web.
Tannic Acid.
Lead Acetate.
Zinc Sulphate.
Vegetable Astringents.

Hemostatics.

Ergot.
Digitalis.
Gallic Acid.
Lead Acetate.
Dilute Sulphuric Acid.
Ipecacuanha.
Hamamelis.
Oil of Turpentine.

Emollients (*Emollio*, I soften),—are substances which soften and relax the tissues to which they are applied. They relieve tension, dilate vessels, diminish pressure on the nerves, and protect inflamed surfaces from the air and from friction. The principal articles which may be classed under this heading are the following :—

Hot Fomentations.
Poultices.
Glycerin.
Lard.
Linseed Oil.
Olive Oil.
Spermaceti.
Almond Oil.
Petroleum.
Soap Liniment.
Starch.
Cacao Butter.

Demulcents (*Demulceo*, I soothe),—are substances, generally of a mucilaginous nature, which soothe and protect the parts to which they are applied. This term is generally used for substances employed for mucous membranes, and the term *Emollients* for similar agents used on the skin. The chief agents belonging to this class are :—

Acacia.
Cetraria.
Barley.
Liquorice.
Starch.
Glycerin.
Flaxseed.
Gelatin.
Honey.
Marsh-mallow.
White of Egg.
Almond.
Olive Oil.
Isinglass.
Tragacanth.
Bland Oils.

Protectives,—are agents of a mechanical nature employed to cover and protect an injured part from the air, water, etc. *Collodion* and

Gutta-percha are those in general use, but certain plasters, as the Adhesive, the Lead or the Soap Plaster, may be employed for this purpose, also Cotton Wool.

Agents Acting on Microbes, Gases, Ferments, etc.

Antizymotics (*Anti*, against, *Zeumohsis*, fermentation),—are agents which arrest fermentative processes, which may depend upon the action of unorganized ferments (enzymes), as diastase, ptyalin, pepsin, etc., or upon that of organized ferments, as the yeast-plant, bacteria, etc. The Antizymotics may be subdivided into two groups, Antiseptics and Disinfectants.

Antiseptics (*Anti*, against, *Sayptekos*, putrefaction),—prevent or retard septic decomposition, by destroying the bacilli which produce it, or by arresting their development. The chief antiseptics are:—

Mercuric Chloride.
Mercuric Iodide.
Mercuric Oxide.
Potassium Permanganate.
Sulphurous Acid.
Sulphites and Hyposulphites.
Sulpho-carbolates.
Potassium Chlorate.
Zinc Chloride.
Carbolic Acid.
Creosote.
Alcohol.
Eucalyptol.
Hydrogen Dioxide.
Quinine.
Salicin.
Thymol.
Borax.
Chlorine.
Hydronaphthol.
etc.

Disinfectants destroy the specific germs of communicable diseases, many of which belong to the microbe class, hence many antiseptics are also disinfectants. They act in several modes, some as oxidizants, others by combining with albumen, others by chemical combination forming substitution-compounds, others by arresting molecular changes, and still others by altering the reaction of the media containing the germs. The principal disinfectants are:—

Heat, 230°–250° F.
Sulphurous Acid Gas.
Nitrous Acid Gas.
Chloride of Lime.
Mercuric Chloride.
Aluminum Chloride.
Zinc Chloride.
Carbolic Acid.
Potass. Bichromate.
Potass. Permanganate.
Iodine.
Chlorine.
Bromine.
Lime.
Osmic Acid.
Ferrous Sulphate.
Zinc Sulphate.
Hydrogen Dioxide.

Condy's Fluid is an aqueous solution of Potassium Permanganate, 2 parts in 100, or gr. 176 in ℥xx. *Burnett's Fluid* is a solution of Zinc Chloride, containing about 50 per cent. of the salt, and equivalent to the official Liquor Zinci Chloridi. *Labarraque's Solution* is the official Liquor Sodæ Chloratæ. *Sanitas* is an aqueous solution of oxidized turpentine, containing Hydrogen Dioxide, Thymol, Camphor, etc. Other disinfectants are Creolin, Lysol, Saprol, Solutol, Solveol,—described under ACIDUM CARBOLICUM, in Part II.

Deodorants,—are agents which destroy foul odors. The *Volatile Deodorants* are chiefly oxidizing and deoxidizing substances, acting chemically on the obnoxious gases; while the *Non-volatile* ones are mainly absorbents, which condense and decompose the effluvia. The deodorants in general use are the following named:—

Chlorine Gas.
Sulphurous Acid Gas.
Nitrous Acid Gas.
Hydrogen Dioxide.
Potassium Permanganate.
Coffee, freshly roasted.
Charcoal.
Earth, Lime.
Ferrous Sulphate.

Parasiticides (*Parrahseetos*, a parasite, *Cædo*, I kill),—are agents which destroy the animal and vegetable parasites found upon the human body. They are generally applied in the form of lotions, ointments or oleates, and include the following substances, viz. :—

- Sulphur.
- Sulphides.
- Sulphurous Acid.
- Sulphur Iodide.
- Iodine.
- Mercury.
- Ammoniated Mercury.
- Mercuric Chloride.
- Mercuric Nitrate.
- Mercuric Oxide.
- Carbolic Acid.
- Petroleum.
- Storax.
- Staphisagria.
- Balsam of Peru.

AGENTS ACTING UPON EACH OTHER.

Antidotes and Antagonists are terms frequently confounded with each other, and rarely defined with sufficient lucidity to enable a clear distinction to be drawn between them. An *Antidote* is a substance which affects a poison either physically or chemically, or both, and in such a manner as to remove the poison from the body or to form with it an insoluble salt or an inert compound, with the object of *preventing* its toxic action upon the organism.

Thus *Tannic Acid* is an antidote to *Digitalis*, as it forms therewith a compound (tannate), which is soluble with difficulty and therefore comparatively innocuous. But as this tannate is not wholly inert, another antidotal measure must be employed, viz. :—evacuation of the stomach, which may be accomplished by the administration of *Zinc Sulphate* or any other emetic, or by the use of a stomach pump.

Antagonists, on the other hand, are agents which directly oppose each other in some or all of their physiological actions, and may be used against each other to *counteract* their effects on the system. Antidotal action takes place in the alimentary canal, and is applicable to vegetable as well as mineral poisons. Antagonism takes place in the blood and tissues, and so far as antagonistic drugs are concerned, is applicable almost wholly to vegetable poisons, as these produce their effects after absorption. The heart and respiratory apparatus are the principal objective points for the antagonism of drugs, but the spinal cord, the cerebrum, the muscular tissue and the glandular system are also affected by most of them.

Antagonistic Measures are such proceedings as may tend to antagonize certain effects of poisons, and include Artificial Respiration,—Faradism of the respiratory muscles,—Constant motion,—Douching,—Rest, etc.

Thus, to refer to the case of Digitalis again, *Saponin* (or *Senegin*) is its most complete physiological antagonist, the counteraction extending throughout the whole range of its effects. *Aconite* and *Morphine* antagonize its cardiac action, the former being considered the best antagonist to the effects of large doses, and the latter to those of its long-continued use. *Alcohol* is also indicated in Digitalis-poisoning, and absolute *Rest* in the recumbent posture is an antagonistic measure of great importance, by reason of the liability of the heart to cease its action on assuming the erect position, when much lowered by the drug.

In the *Treatment of Poisoning*, whether from mineral or vegetable substances, the first indication is to administer the appropriate chemical antidote, so as to render the poison harmless or comparatively so. Next, the stomach should be emptied and washed out, lest the newly-formed compound be absorbed after a time, and also to remove any of the poison which may have escaped the action of the antidote. Next, the antagonist should be administered, in order to counteract the effects of such portion of the poison as may have been absorbed. Lastly, the appropriate antagonistic measures should be employed to sustain the action of any organic function which may show signs of failure. In most cases of alkaloidal poisoning absorption has proceeded so far before assistance is obtained that antidotes are of no value, and reliance can only be placed upon the physiological antagonist and such supporting measures as will tend to maintain vitality until the poison has been eliminated by the natural channels.

In the following pages the antidotes and antagonists for each poisonous substance in the Materia Medica are enumerated under their proper titles, and in the Appendix the same agents are tabulated in a suitable form for reference. A few examples are appended below, to illustrate the principles above stated, and to point out some of the most prominent instances of physiological antagonism at present known.

Atropine, Belladonna, etc.

Antidotes,—Tannic Acid, to form an insoluble tannate. Zinc Sulphate, as an emetic, or Apomorphine hypodermically, or the stomach-pump. Purgation. *Antagonists,*—Muscarine. Physostigmine. Pilocarpine. Morphine. Quinine. Aconite. *Antagonistic Measures,*—Artificial respiration. Faradism of respiratory muscles.

Strychnine, Nux Vomica and Ignatia.

Antidotes,—Animal Charcoal suspended in water. Emesis, as above-mentioned. *Antagonists,*—Chloral, or Chloroform, to muscular relaxation. Curare. Amyl Nitrite. Potassium Bromide. *Antagonistic Measures,*—Artificial respiration. Perfect quiet.

Morphine and Opium.

Antidotes,—Emesis or stomach-pump. Potassium Permanganate. *Antagonists,*—Atropine. Strychnine. Black Coffee. Caffeine. Ammonia, inhaled. Amyl Nitrite. *Antagonistic Measures,*—Cold douche. Artificial respiration. Continued movement.

Potassium Cyanide.

Antidotes,—Iron Sulphate, to form Prussian Blue. Emesis. *Antagonists,*—Atropine. Ammonia. Alcohol. *Antagonistic Measures,*—Artificial respiration. Faradism.

Arsenic and its Compounds.

Antidotes,—Hydrated Iron Oxide. Dialyzed Iron. Magnesia. Chalk. Lime-water. Emetics, or stomach-pump. Oil or Mucilage to protect the mucous membranes. Diluents. Potassium Iodide, to promote elimination. *Antagonists,*—none.

DOSAGE OF MEDICINES.

The Doses given throughout this book are for adults; for children the following rule (Young's) will be found the most convenient. Add 12 to the age and divide by the age, to get the denominator of a fraction, the numerator of which is 1. Thus, for a child two years old, $\frac{2+12}{2} = 7$, and the dose is one-seventh of that for an adult. Of powerful narcotics scarcely more than one-half of this proportion should be used. Of mild cathartics, two or even three times the proportion may be employed.

Children bear Opiates badly :—but on the other hand they stand comparatively large doses of several other drugs; such being Arsenic, Belladonna, Calomel, Ipecacuanha, Squill, Rhubarb, and several other purgatives.

For Hypodermic Injection, the dose should be two-thirds or three-fourths of that used by the mouth; by rectum five-fourths of the same. *Strychnine* acts more actively when given per rectum than by the stomach.

Conditions which modify the action of medicines, and therefore affect their dosage, are—age, body-weight, temperament and idiosyncrasy, drug-habits, intervals between doses, time of administration, condition of the stomach, temperature of the body, cumulative drug-action, mode and form of drug-administration, disease, climate, race, etc.

The Dosage of Medicines is the weakest part of the therapeutic armament, the flaw in our weapons which may be the cause of their failure at any moment, perhaps the most critical one for a life. If the accumulated rubbish of ages, which has been called therapeutic knowledge, is ever to be given scientific shape, ever placed in process of becoming a science, the question of dosage must form one of the principal corner-stones in the foundation. Drugs have widely differing actions on the human organism in health and in disease, according as they are administered in different doses, in different menstrua, and during different conditions of the subject's health. This difference, when between extremes of dosage, is often so wide as to separate actions directly contrary to each other,—that of the very large one opposing the action of the very small dose:—a truth hidden by one set of dogmatists under their former "doctrine," now "rule," of "similars," and avoided by the great mass of the medical profession, through dread of the bogy-name, "irregular."

A thoroughly-prepared materia medica of half-a-dozen standard drugs, such as Aconite, Arsenic, Belladonna, Mercury, Opium and Quinine,—based upon their actions and uses in different doses and under different states of the organism,—would be of more real value to the physician who wishes to do his work accurately and with his eyes open, than all the contents of the dispensatories, plus the entire literature of the "new remedies," and every symptom in the ten quarto volumes of the largely discredited and partly repudiated homœopathic Materia Medica.

If our medical students would each devote but one month, of his annual college vacation, to the personal investigation of some one feature of the action of some one drug, under such safe-guards against error as would secure the acceptance of the resulting observations,—what a mine of therapeutic gold would soon yield its solid truth to eager eyes! Formally laid down by Haller (*see ante*, page 18) in 1755, cultivated to some extent by Alexander in 1768, Crumpe in 1793, Thommassini, Curtis, etc.,—urged by John Hunter, Sir Thomas Watson, Dr. King Chambers, and many other luminaries of the medical profession,—the scientifically guarded proving of drugs on the human organism has lain, like the similar work of Jenner, neglected all these years, waiting for another Koch to re-inaugurate the work.

PART I.

MATERIA MEDICA AND THERAPEUTICS.

ABRUS, Jequirity (Unofficial),—is the seed of *Abrus precatorius*, or Wild Liquorice, a plant of the nat. ord. Leguminosæ, indigenous in India, but growing wild in most tropical countries. The seeds are small, hard, of a bright scarlet color, with a black spot around the hilum, and contain an alkaloid, some fixed oil, sugar, a principle resembling Glycyrrhizin, and *Abric Acid*, $C_{12}H_{24}N_3O$; but neither of these is believed to be the active principle.

Preparation.

Infusum **Abri**, *Infusion of Jequirity* (Unofficial),—prepared by macerating three powdered seeds in ℥ss of cold water for twelve hours, adding ℥ss of boiling water, and filtering when cold. It should be used while fresh, as after two or three days it is worthless.

Another formula contains gr. ix of Jequirity to the ℥, with gr. iv of Boric Acid to prevent decomposition.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Jequirity seeds, when moistened with water, become highly poisonous. If applied to the conjunctiva, a severe inflammation is set up, with œdema and false membrane, ulceration of the cornea, and extension to the lids, face, neck and submaxillary glands. Inserted into a wound in cattle, they cause death in a few hours. The irritant action is believed to result from the presence in the seeds of some ferment, or perhaps great numbers of gonidia, which develop rapidly on a suitable tissue. The infusion, in a short time, swarms with bacteria.

Jequirity is used for the purpose of producing a purulent or croupous conjunctivitis, by which to destroy old granulations (trachoma) and pannus. A mild infusion is applied to the eye two or three times a day for two days, and followed by weak solutions of Alum or Borax. This should be repeated after three weeks if necessary. An emulsion of the seeds in water is a useful application to unhealthy ulcers and lupus.

ABSINTHIUM, Wormwood,—the leaves and tops of *Artemisia Absinthium*, a perennial garden herb of the nat. ord. Compositæ, indigenous in Europe, but cultivated in the United States. The leaves are about 2 inches long, hoary, silky-pubescent, petiolate, pinnately two or three-cleft; heads numerous, with small, pale-yellow florets, odor aromatic, taste persistently bitter. It contains a volatile oil and a bitter principle, *Absinthin*. Dose, gr. xx-xl, in infusion. There are no official preparations, but of the formerly official Vinum Aromaticum, Absinthium constituted one per cent.

Absinthe, the French liqueur, is an alcoholic solution of the oil, containing also extracts of Anise, Marjoram and Angelica. Its continued use produces various nervous symptoms, morning nausea and vomiting, also a tendency to epileptiform convulsions.

The bitter constituent of Absinthium is stimulant to the digestive organs, but the oil is a narcotic poison, increases the cardiac action, and produces tremor, stupor, epileptiform convulsions, involuntary evacuations, and stertorous breathing. It is but little used in medicine, and only as a stomachic tonic in dyspepsia.

ACACIA, Gum Arabic,—is a gummy exudation from *Acacia Senegal*, a small tree of the nat. ord. Leguminosæ, indigenous in Africa. It occurs in spheroidal tears of various sizes, breaking with a glassy, sometimes iridescent fracture; insoluble in alcohol, but soluble in water, forming a thick and mucilaginous liquid. It consists of *Arabin* or *Arabic Acid*, $C_{12}H_{22}O_{11}$, combined with calcium, potassium, and magnesium.

Preparations.

Mucilago Acaciæ, *Mucilage of Acacia*,—has of Acacia 34, Water to 100 parts. It should not be prescribed with tinctures or spirits except in very small quantity. Dose, indefinite.

Syrupus Acaciæ, *Syrup of Acacia*,—has of the Mucilage 25, Syrup 75. Should be freshly made. Dose, indefinite.

Acacia enters into the composition of Mistura Amygdalæ, Mistura Glycyrrhizæ Composita, Pulvis Cretæ Compositus, Trochisci Cretæ, Trochisci Cubebæ, and Trochisci Glycyrrhizæ et Opii.

Gum Arabic has no activity except the negative one of a demulcent, and is chiefly used in coughs, sore throats, catarrhal inflammation of the stomach and intestines, and irritant poisoning. It is much employed in pharmacy to suspend insoluble powders in mixtures, for which purpose the mucilage is generally used.

ACETANILIDUM, Acetanilid, (*Antifebrin*).—Like the major number of the newest antipyretics, which are related either to Chinolin or to Phenol, *Acetanilid* is a derivative of *Anilin*, from which it is obtained by the action thereon of glacial acetic acid, substituting the organic radical Acetyle for an atom of hydrogen. Chemically, it has the name *Acetanilid* or *Phenyl-acetamide*, and the formula $C_6H_5NHC_2H_3O$.

The name *Antifebrin* is copyrighted by its original promoters for trade purposes, and therefore should be dropped from professional usage.

It is a pure white and crystalline powder, of neutral reaction, odorless, but of slightly burning taste. It melts at 235° F., and distils at 557° F., —is soluble freely in alcohol, wine, etc., but very sparingly (1 in 200) in cold water, more readily in hot water. It is a neutral substance, being unaffected by hydrochloric or sulphuric acids, and ordinarily so by alkalies.

The dose ranges from gr. ij to gr. x, repeated twice, and not exceeding gr. xxx in the 24 hours. As much as ʒj has been swallowed without ill effects supervening. It may be administered in the very convenient form of compressed tablets;—also in powders, or in dilute alcoholic solution. ʒj may be dissolved in ℥ivss of brandy, to which, if we add ʒvj each of simple syrup and water, we get a six-ounce mixture, of which a tablespoonful (℥ss) contains 5 grains of Acetanilid, a fair adult dose. As an antipyretic, gr. iij may be administered every ¼ to ½ hour, until 12 or 15 grains have been given, which will usually be a sufficient quantity, especially if given at the acme of the febrile movement.

Unofficial Derivatives and Allied Compounds.

Antikamnia is a proprietary preparation widely advertised as an antipyretic and analgesic, of equal power in the latter respect with morphine. Analyses of several samples have been made by different chemists, all of which agree in finding the chief ingredients to be Acetanilid and Sodium Bicarbonate in varying proportions. By some observers Caffeine was detected, also Tartaric Acid, etc. The preparation is formulated by the earliest analysis as a mixture of Acetanilid 70, Sodium Bicarbonate 20, and Caffeine 10 parts. Dose, gr. v–xv.

Antinervin is a mixture of Acetanilid, two parts, with 1 each of Ammonium Bromide and Salicylic Acid (Ritsert). It is also called by the names *Salbromalide* and *Salicylbromalide*. Dose, gr. v–xv.

Phenolid is a preparation consisting of a mixture of Acetanilid 58, and Sodium Salicylate 43. It competes with Antikamnia as a universal panacea against pain.

Exodyne is a mixture of Acetanilid 90, Sodium Salicylate 5, and Sodium Bicarbonate 5. The name (from ἐξ, *out of*, ὀδύνη, *pain*) sufficiently states its claims to medicinal virtue.

Exalgin, *Methyl-acetanilid*,—is a crystalline compound allied to Acetanilid, occurring in acicular needles, readily soluble in dilute alcohol, less so in warm water, and with difficulty in cold water. Dose, gr. j–v, in wine, or other dilute alcoholic mixture. Alcohol ʒss, and Water ℥j form a permanent solution with gr. xvj.

Exalgin resembles Acetanilid and Antipyrin in its antipyretic and analgesic powers. Compared with the latter it is less efficiently antipyretic, but more powerful as an analgesic and antiseptic. In overdose it is highly dangerous, having produced symptoms resembling those of angina pectoris, also toxic effects resembling those of carbolic acid, with delirium, dyspnœa, cyanosis, and renal disturbances. It has been used with most excellent results in neuralgias; also in chorea. In the latter affection daily doses of 3 grains were sufficient. Its name, derived from ἐξ, *out of*, ἄλγος, *pain*, denotes its principal therapeutic action.

Phenacetin and **Methacetin** are closely allied to Acetanilid, both chemically and medicinally. They are described under the title PHENACETINUM.

PHYSIOLOGICAL ACTION.

Acetanilid is strongly analgesic, hypnotic and antispasmodic, also a moderately efficient antipyretic. It lessens the reflex action of the spinal cord, and inhibits the sensibility of the sensory nerves. It raises arterial tension somewhat, and slows the heart in a corresponding degree, quiet sleep often following.

Compared with the action of Antipyrin, the effect of Acetanilid on the body-temperature is manifested more slowly (1 hour against ½ hour), but lasts a longer time (6 against 2 hours). It is markedly diuretic, somewhat diaphoretic; is a cerebral, muscular and vaso-motor stimulant, and leaves no ill after-effects;—while Antipyrin is powerfully diaphoretic, a cerebral sedative, and produces great depression. Furthermore, Acetanilid frequently produces nearly the same degree of reduction of body-temperature as Antipyrin, with the ingestion of but ¼th the dose; and, like the latter agent, it has little or no effect on the normal temperature, and its continued use begets tolerance of its action. Its antipyretic action is, however, less reliable than that of Antipyrin, and corresponds, in degree and in duration, to the size of the dose. There is neither vomiting nor diarrhœa afterwards, but there is a tendency, in some cases, to collapse, with chills and cyanosis, especially the latter, during the period of depressed temperature.

A toxic dose destroys the ozonizing function of the blood, decolorizing it, and forming methyl-hæmoglobin. The heart, liver and kidneys are found in a state of acute fatty degeneration, in animals poisoned thereby. Its continued use in large doses is highly injurious to the blood, especially in diseases (as typhoid fever) which are themselves destructive to the blood-elements.

THERAPEUTICS.

Besides being a fairly efficient antipyretic, Acetanilid has marked analgesic and antispasmodic powers; and these, together with its great advantages of a small dose, comparative efficiency and safety, and the absence of the severe rigors and cardiac depression which mark the chinolin derivatives,—combine to make it one of a wider therapeutical range than most of its analogues. It is especially useful in phthisis and typhoid fever, for the hyperpyrexia, thereby relieving wakefulness, lessening delirium, and upholding a failing heart; but if long used in large doses in the latter disease it may increase the liability to serious sequelæ, especially periostitis of the ribs, gangrene of tissues, etc. For the pains of locomotor ataxia, and in those of rheumatic origin, sciatica, lumbago, etc., it is a most efficient remedy. In acute rheumatism, influenza and scarlet fever it is highly praised; and in acute bronchitis doses of four grains every two hours have often arrested the attacks within twenty-four hours. In epilepsy, it is being tried, with the view of moderating reflex excitability. Added in minute proportion to aqueous solutions for hypodermic use, it is said to preserve them from decomposition more efficiently than any other agent hitherto employed for that purpose. It acts very well with children, when used in proper doses; but in all cases, overdosing must be avoided, both as to quantity and repetition thereof.

Antinervin attracted much attention, during the recent epidemic of influenza in Scotland, as an analgesic and antipyretic. It relieved the pains in the back and head, reduced the fever and produced copious perspiration, without being followed by unfavorable sequelæ. It has proven to be of great benefit in acute rheumatism, and may be used with advantage in all abnormal excitement of the nervous system, either against neuralgia or as a general nerve sedative. The best way to prescribe it, is as an extemporaneous mixture, containing the proper proportions of its ingredients, viz.:—Acetanilid 50, Salicylic Acid 25, and Ammonium Bromide 25 per cent., mixed *secundum artem*, and administered in doses of gr. v–xv every two hours until relief is obtained.

ACIDUM ACETICUM, Acetic Acid,—is a liquid composed of 36 per cent. of absolute *Acetic Acid*, $HC_2H_3O_2$, and 64 per cent. of water. It is a clear, colorless liquid, of a distinctly vinegar odor, a purely acid taste, and a strongly acid reaction; sp. gr. 1.048 at 59° F.; miscible in all proportions with water and alcohol, and wholly volatilized by heat. It is prepared from wood by destructive distillation and purification. Acetic Acid is also official in two other degrees of concentration, viz.:—

Acidum Aceticum Glaciale, *Glacial Acetic Acid*, $HC_2H_3O_2$,—is nearly or quite absolute Acetic Acid, solid below 59° F., above that temperature a colorless liquid of sp. gr. 1.056 to 1.058. Is strongly escharotic and only used locally.

Acidum Aceticum Dilutum, *Diluted Acetic Acid*,—consists of Acetic Acid 10, Distilled Water 50 parts, contains 6 per cent. of absolute Acetic Acid, and has a sp. gr. of 1.008. Dose, ʒj–ij.

Acetum, *Vinegar* (Unofficial),—is an impure diluted Acetic Acid, produced by the acetous fermentation of any liquid susceptible of the vinous fermentation.

Diluted Acetic Acid is used in the preparation of the two official Aceta (Vinegars).

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Acetic Acid, like the other vegetable acids, in concentrated form is escharotic and produces gastro-enteritis if swallowed. In dilute form it acts as a refrigerant, diminishing thirst and allaying restlessness. It forms salts in the stomach, thus enters the blood, and is there oxidized, producing carbonic acid, and thereby increasing the acidity of the urine. It is also diuretic. Long used, it causes emaciation and poverty of the blood, producing a general scorbutic condition. It is hemostatic and anthelmintic, and the vapor inhaled causes reflex contraction of the vessels and raises the blood-pressure. Lately, investigations into its germicidal powers have given it high rank among germ-destroyers, a solution containing 7 per cent of this acid proving as efficient as mercuric chloride.

The glacial acid is used as a caustic in many skin affections, as warts, condylomata, etc., and to destroy the parasite in ringworm and pityriasis. It has been employed locally in carcinoma, with the view of dissolving the supposed cancer-cells. The dilute acid is used locally in superficial inflammations of the skin, and may be sponged over the body to check perspiration and reduce the surface temperature in fevers. It is often administered internally to reduce obesity, which it does by impairing digestion. Locally, it may be employed to arrest slight hemorrhages, as epistaxis; and is occasionally used by enema for the destruction of ascarides.

ACIDUM BORICUM, Boric (Boracic) Acid, H_3BO_3,—is a weak acid occurring in transparent, colorless, six-sided plates, of unctuous touch, odorless, of a cooling and slightly bitter taste, soluble in 25 of water, in 15 of alcohol and in 10 of glycerin. Its solubility is increased by the addition of HCl. It is produced from Borax by the action of sulphuric acid; also by the purification of the native acid. Dose, gr. v–xv. There are 2 official Borates, viz.:—

Sodii Boras, *Sodium Borate, Borax*, $Na_2B_4O_7 + 10H_2O$,—colorless, transparent prisms, of cooling and sweetish, afterwards alkaline taste and alkaline reaction, soluble in 16 of water at 59° F., and in 0.5 of boiling water; insoluble in alcohol. Occurs native in ancient lake beds in the Death Valley region, California, and various other parts of the world. Dose, gr. v–xxx.

Glyceryl Borate, *Boroglycerin*,—official in the following preparation, viz.—

Glyceritum Boroglycerini, *Glycerite of Boroglycerin, Glycerite of Glyceryl Borate, Solution of Boroglyceride*,—prepared by heating together Boric Acid 310 and Glycerin 460, until reduced to 500 grammes, then adding an equal weight of Glycerin.

Unofficial Preparations.

Boroglyceridum, *Boroglyceride*,—is a solid chemical compound, prepared by heating together Boric Acid and Glycerin. It is soluble in water, but is generally used in solution with glycerin, as the above official glycerite. It combines readily with Chrysarobin, Carbolic Acid, Atropine and Morphine, and is used as a local application in eye diseases and skin affections.

Boracic Ointment,—has of Boracic Acid 1, White Wax 1, Paraffin 2, Almond Oil 2, thoroughly mixed together.

Boracic Lotion,—is a saturated solution of the acid in water.

Boracic Lint,—prepared by steeping lint in a boiling saturated solution and drying. It contains nearly one-half its weight of the acid.

Magnesii Boro-citras, *Magnesium Borocitrate*,—prepared extemporaneously thus,—℞. Magnesii Carbonatis ʒj, Acidi Citrici ʒij, Sodii Biborat. ʒij, Aquæ Bullientis ℥viij. A tablespoonful three or four times daily as a solvent of acid calculi.

Potassii Tartra-boras, *Potassium Tartraborate*,—is a better solvent of uric acid calculi than the Magnesium salt, and is soluble in 2 parts of cold water. Prepared by heating together Boracic Acid 1, Potassii Bitartras 4, Water 10 parts. Dose, gr. xx, largely diluted with water, three or four times a day.

Sodium Tetraborate is a new preparation (or salt ?) obtained by heating together equal parts of Boric Acid, Borax and Water. The resulting compound is neutral, and is supposed to be an entirely new salt, named as above. It was introduced to furnish a more soluble form of Boric Acid, and may be used wherever the latter is indicated, but it has the disadvantage of forming hard crusts upon dressings, which irritate abraded surfaces.

It has long been known that the addition of Borax to Boric Acid in aqueous solution greatly increases the solubility of the acid,—and the above may explain the observed fact.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

BORIC ACID is an efficient antiseptic, disinfectant and deodorant, arresting fermentation and putrefaction, and very destructive to all low organisms. A solution of 1 in 133 arrests the activity of bacteria. It is feebly acid and but slightly irritant, and is used as a surgical dressing for its antiseptic and unirritating qualities. Its lotion and ointment have been successfully employed in ulcers, eczema, burns and scalds, pruritus ani, fetid perspiration, wounds, tinea tonsurans, and tinea circinata.

SODIUM BORATE is antiseptic and disinfectant, as it also destroys low vegetable organisms. It removes the epidermis when locally applied, has power to increase uterine contraction, and aids the solution of Benzoic and Boric Acids. It is employed as a wash to remove the epidermis from the skin, and as a lotion in acne, freckles, chloasma, leucorrhœa, aphthæ, etc., also to allay itching in urticaria, psoriasis, impetigo, and in pruritus pudendi, scroti et ani. It has been used internally in amenorrhœa, dysmenorrhœa, puerperal fever, and puerperal convulsions, for its supposed specific action on the uterus; and has been found highly efficient in epilepsy.

BORO-GLYCERIDE in solution (1 to 40), or as the official Glycerite, is also a powerful antiseptic, and is used as a lotion in purulent ophthalmia and in the treatment of wounds, also as a local application to diphtheritic membranes. It is an efficient preservative of milk and food against putrefactive changes, and is entirely harmless.

An elegant cosmetic cream may be made by dissolving Boric Acid in Glycerin, and then incorporating it with White Wax and Almond Oil.

ACIDUM CARBOLICUM, Carbolic Acid, Phenol, *Phenic Acid, Phenyl Alcohol,* C_6H_5OH,—occurs in Castoreum, in the urine of man and of herbivorous animals, and in the products of the dry distillation of various organic substances, such as resin, bones, wood and coal. It is obtained by the fractional distillation of coal-tar, and subsequently purified; occurring in colorless, interlaced, needle-shaped crystals, of characteristic, aromatic odor, deliquescent on exposure to damp air, and acquiring a reddish tint with age and light. When copiously diluted with water it has a sweetish taste, and a slightly burning after-taste. Soluble in about 15 of water, very soluble in alcohol, ether, chloroform, benzol, glycerin, oils and carbon disulphide; almost insoluble in benzin. Is melted by gentle heating, and liquefied by the addition of about 8 per cent. of water. Dose, gr. ¼–ij, well diluted.

Acidum Carbolicum Crudum, ~~*Impure*~~ Crude *Carbolic Acid,*—is obtained as above stated, but by a lower degree of heat; and contains various other constituents of coal-tar besides Phenol, chiefly *Cresol* (Cresylic Acid) and *Xylic Acid,* in varying proportions. Is used as a disinfectant.

Peculiarities about Carbolic Acid are that the addition of about 8 per cent. of water liquefies it, while a further addition of water produces a turbid mixture, until about 15 parts of water to 1 of the acid is reached, when a stable and clear solution is formed. One volume of the liquefied acid, containing 8 per cent. of water, forms with one volume of Glycerin a clear mixture, which is not rendered turbid by the addition of 3 volumes of water (absence of Creosote and Creosol).

Hitherto described as neutral to litmus paper, it is now officially given a faintly acid reaction. Its claims to be considered an acid are, however, very feeble, as, though it combines with salifiable bases, it is incapable of neutralizing the alkalies, and its combinations are decomposed by the feeblest acids (carbonic, etc.), sometimes, it is asserted, even by water. Chemically, it is considered to be the Hydroxyl (HO) derivative of Benzene (C_6H_6), which would ally it to the alcohols; but as it does not yield the same products on oxidation (yielding finally oxalic instead of acetic acid), it is taken as the type of a class called *phenols*, which are simple HO derivatives of the aromatic hydrocarbons. [For the chemical theory of the Benzene derivatives see the sub-title SUBSTITUTES FOR QUININE, under the title CINCHONA.]

Carbolic acid is converted, by concentrated sulphuric acid into Sulpho-carbolic Acid, $C_6H_5HSO_4$; by nitric acid into several substitution-products, the most important of which is Picric Acid. The reddish tint which it acquires with age and light, does not impair its properties; but is unaccounted for satisfactorily, though supposed to be due to the presence of *Aurin* and *Rosolic Acid*, impurities which form a red compound by the absorption of CO_2 and oxygen.

Carbolic Acid coagulates albumen and collodion, Creosote does not.

Allied Products and Derivatives.

Creosotum, *Creosote*,—is a similar product, obtained from wood-tar. It consists of a mixture of phenols, chiefly Guaiacol ($C_7H_8O_2$), and Creasol ($C_8H_{10}O_2$); and by the action of nitric acid is converted into oxalic acid principally, while Carbolic Acid is converted into picric acid by that reagent. Creosote does not coagulate albumen or collodion, Carbolic Acid does. Creosote is described under its own title.

Resorcinum, *Resorcin*, $C_6H_6O_2$,—is also a phenol, obtained from certain resins by the action of fusing alkalies, and is described under its own title.

Sodii Sulpho-carbolas, *Sodium Sulpho-carbolate*, $NaSO_3C_6H_4(OH) + 2H_2O$,—is prepared by dissolving Carbolic Acid in an equal part of strong Sulphuric Acid, thus forming sulpho-carbolic acid, which is neutralized with barium carbonate, and then treated with water and sodium carbonate, forming a solution of Sodium Sulpho-carbolate, which is evaporated to crystallization. It occurs in transparent, rhombic prisms, soluble in 5 of water, less freely in alcohol and in glycerin. Dose, gr. x–xxx.

Sulpho-carbolates of Ammonium, Magnesium, Potassium and Sodium crystallize in tufts of acicular crystals, more or less white; Sulpho-carbolate of Copper, in transparent, light blue, interlacing prisms; of Iron, in small brown, micaceous crystals; of Zinc, in transparent, rectangular, colorless plates. That of Sodium is the only one official.

Preparations.

Unguentum Acidi Carbolici, *Ointment of Carbolic Acid*,—strength 5 per cent. Carbolic Acid 5, Unguentum 95. For external use.

Glyceritum Acidi Carbolici, *Glycerite of Carbolic Acid*,—has of Carbolic Acid 1, in Glycerin 4. Dose, ♏v–x in water. Should be diluted with an equal quantity of water for external use.

Aqua Acidi Carbolici, *Carbolic Acid Water* (Unofficial),—has of the Glycerite ʒx to Aquæ Oj. Dose, ʒj–iv.

Carbolic Acid Solutions (Unofficial),—for antiseptic surgery, are:—

5 per cent. in Water, as a spray or wash. Is decidedly irritant.
2½ per cent. in Water, for sponges, hands, or as a lotion.
5 per cent. or less in Olive Oil, as a special dressing.

Carbolic Acid Gauze, is Gauze medicated with Carbolic Acid 1, Resin 5, Paraffin 7, and is used as a surgical dressing.

Carbolic Acid Plaster,—an unofficial plaster composed of Carbolic Acid 25, Shellac 75, coated with Gutta-percha dissolved in Carbon Disulphide.

Phenol Sodique (Unofficial),—is composed of Carbolic Acid, gr. 188, Caustic Soda, gr. 31, Distilled Water, ℥iv.

Phenol-camphor (Unofficial)—has of Carbolic Acid and Camphor, equal parts. A colorless, refractive liquid; soluble in alcohol, ether, chloroform and oils; insoluble in water or glycerin. Used as a local anæsthetic, chiefly for toothache. In the proportion of Carbolic Acid 1, Camphor 3, an application to false membrane in diphtheria, and as subcutaneous and intrapulmonary injections in phthisis.

Phenol Iodatum, *Iodized Phenol* (Unofficial),—a mixture of Iodine and crystallized Carbolic Acid. See under **Iodum.**

PHYSIOLOGICAL ACTION.

Carbolic Acid is a powerful antizymotic and antiseptic, a good disinfectant, somewhat antipyretic, also a local anæsthetic, and a depressant of the cardiac, respiratory, cerebral and spinal functions. It is destructive to all low forms of life, rapidly destroying all organized ferments, both animal and vegetable. On unorganized ferments (enzymes), such as pepsin and ptyalin, it does not act so readily, but in large doses it likewise destroys their activity; and is an efficient parasiticide against certain vegetable parasites which infest the skin. The foregoing is true of the liquefied acid and its aqueous and glycerin solutions, but not of its solutions in oils, which have no antizymotic properties.

Applied to the skin in weak or moderately strong solutions, it produces local anæsthesia, with a sensation of numbness, which lasts for several hours. Applied in concentrated form, it is irritant and superficially escharotic, with burning pain of brief duration, and produces at the point of application a white spot, changing to red if the acid is soon removed. It does not vesicate, but if the application be prolonged, a white eschar or slough results, from the coagulation of the albumen of the tissue, and this is bordered by a red zone of inflammation.

Taken internally, the concentrated acid has the same effect on the mucous membranes as on the skin, producing white, superficial eschars, after burning pain of short duration, in the mouth, gullet and stomach. To the latter viscus it is a powerful irritant, and causes a violent gastritis. In medicinal doses, when acted upon by the gastric secretions, it is converted into a sulpho-carbolate, and is so diluted by the contents of the stomach that it loses its antizymotic power, and hence is of no value as an internal antiseptic remedy. In the blood it probably circulates as an alkaline carbolate, in medicinal doses having no effect upon the circulation or respiration. Its antipyretic power is incapable of being utilized, requiring a dosage which would be dangerous.

A toxic dose paralyzes the vaso-motor centre in the medulla before markedly affecting the heart. The blood-pressure and body-temperature fall; the respiration, at first accelerated by stimulation of the vagi, is quickly depressed and ultimately paralyzed; cardiac inhibition is stimulated, the heart being first slowed and then depressed. The anterior cornua of the spinal cord are first stimulated, producing convulsions; and subsequently depressed, causing suspension of reflexes, impaired motility and sensibility, and finally paralysis of both motion and sensation. The cerebrum is profoundly depressed, producing stupor deepening into coma, with minutely contracted pupils. Death occurs, in most cases, by paralysis of respiration; in a few, by paralysis of the heart.

Carbolic Acid is readily absorbed, and rapidly diffused; many fatal cases having resulted from its external use in undiluted form. A single vaginal injection of a moderately weak solution has produced very severe constitutional results. It is partly oxidized in the blood, and partly eliminated by the lungs and kidneys. It imparts to the urine a peculiar smoky or olive-green color, which is not due to blood, and may be seen after moderate doses, or even as a result of its absorption from dressings. When ingested in a large dose, the acid itself may appear in the urine; but the smoky color is due to the presence of its intermediate oxidation products, viz., pyrocatechin (only in alkaline urine), and hydrochinon, also salts of sulpho-carbolic acid and glycuronic acid. In poisoning thereby the sulphates are absent from the urine.

A case of poisoning by Carbolic Acid shows white, corrugated eschars in the mouth and fauces, if the drug has been swallowed in concentrated form. These eschars are also found on the mucous lining of the œsophagus and stomach, at the autopsy. The patient has complained of an intense, burning sensation along the same tract, immediately after the ingestion of the poison, and soon passes into a state of collapse; the skin being cold and clammy, the pupils contracted, respiration becomes more and more feeble and shallow; the urine, if not entirely suppressed, is of a dark-green color; reflexes are then abolished, stupor and coma supervene, and finally the breathing ceases. The blood, after death, is dark in color, and coagulates imperfectly; and fatty degeneration of the liver and kidneys may be found. When poisoning occurs by absorption, an early symptom is the peculiar, smoky color of the urine. There may be pain in the lumbar region, indicating renal irritation, and slight restlessness or cerebral disturbance; after which come the impairment of respiration and stupor.

A toxic dose of Carbolic Acid, taken internally, is one of the most rapidly acting poisons known, sometimes equalling Prussic Acid in this respect. The symptoms develop almost immediately, and death may occur in a very few minutes; but usually the patient lives from one to ten hours; rarely over two days. In some cases, a great amendment has occurred, with restoration of consciousness, but after some hours sudden and fatal collapse has supervened. The minimum fatal dose is not determined, but ℥ss has frequently caused death; and doses as small as ♏vj have given rise to dangerous symptoms. Cases of suicidal and accidental poisoning by this drug are very frequent, by reason of the facility with which it may be obtained for use as a disinfectant.

Treatment of Poisoning by Carbolic Acid.

If the case is seen shortly after ingestion, *Apomorphine* may be administered hypodermically, as a rapidly acting emetic; but, in any case, the stomach should be washed out freely. The chemical antidote is any soluble sulphate to form the harmless sulpho-carbolates; as *Magnesium Sulphate* ℥j, or *Sodium Sulphate* ℥ss, dissolved in ½ pint of water. Even if several hours have elapsed since the ingestion of the poison, the sulphates should be used, as their antidotal action proceeds in the blood current. In one case where ℥ss of the 95 per cent. acid had been taken, nearly ℥iij of *Magnesium Sulphate* (Epsom salts) were used, resulting in complete recovery from an apparently hopeless condition. Stimulants, as ether or brandy hypodermically, should also be used freely; also hot water bottles and hot blankets if signs of collapse appear. Vegetable demulcents may be given (but no oils or glycerin), to protect the mucous surfaces. *Liquor Calcis Saccharatus*, or *Syrupus Calcis*, is also antidotal to the poison in the stomach, but is much less efficient than the sulphates. *Atropine*, hypodermically, is a very complete physiological antagonist to the systemic symptoms, maintaining the heart and respiration until elimination occurs (Post). *Cider Vinegar* may prove antidotal, as it removes the effects of the local application of the strong acid. *Soap*, in strong, watery mixture (suds), is said to have acted as a perfect antidote; but its action would be confined to the poison in the stomach.

THERAPEUTICS.

Carbolic Acid owes its prominence to its having been the principal agent used in the antiseptic method of treating wounds; but its employment in that connection has become much restricted, and many of the most prominent surgeons have abandoned it altogether in favor of other germicides. In the estimation of many, however, it still retains high favor as a surgical antiseptic lotion; and it is in general use as a disinfectant for surgical instruments, hospital apparatus, soiled linen, etc. The carbolic spray, formerly so commonly used during operations, has been entirely discarded. For disinfectant purposes about drains, privies, on floors, walls, etc., the crude acid is to be preferred, not only on account of its less cost, but also for the reason that its principal impurity, Cresol (Cresylic Acid), has very high power as a disinfectant.

As a local application, Carbolic Acid has extensive and varied uses. It relieves pruritus of almost any form, if applied in 5 per cent. aqueous solution over the itching surface; and a lotion, composed of gr. xx to ℥ss each of water and glycerin, makes a very efficient application for the itching of jaundice. The glycerite, diluted, effectively destroys the fungus of tinea tonsurans or tinea versicolor, and may be applied as a stimulant to indolent ulcers, or to the patches of aphthous stomatitis. A one per cent. solution in water and glycerin (♏v to ℥j) makes an excellent anæsthetic and cleansing gargle for the painful sore throat of diphtheria, tonsillitis, etc. Cotton soaked in the strong acid will stop the pain of a decayed tooth, but care must be taken, by covering it with dry cotton, to prevent its access to the gums, or sloughing thereof may result. For burns, one of the best dressings is carbolized sweet oil (ʒj to ℥vj) to relieve the pain. For local anæsthesia in minor surgical operations, such as that for ingrowing toe-nail or opening a felon, the part may be soaked for ten minutes in a 30 per cent. solution, or the pure acid may be brushed over the line of incision.

As a parenchymatous injection, which should be not over ʒss of a 2 per cent. solution, Carbolic Acid has been employed with much success in combating deep-seated inflammations. The skin being first anæsthetized by the local application of the acid, a hypodermic needle is introduced obliquely, to the centre of the inflamed tissue, and should not be connected with the syringe if any blood escapes through it, lest the injection be introduced into a vein. This method has been successfully used in glandular swellings, 5 to 10 minims of the solution for each gland being sufficient, in phlegmons of every grade and character, erysipelas, poisoned wounds, inflamed bursæ, hydrocele, acute and subacute rheumatism, chronic synovitis, buboes, and in some severe cases of tetanus.

Internally, Carbolic Acid is not much employed. It has been given to relieve flatulence and dyspepsia, and is often an efficient remedy against vomiting. It has proven of considerable temporary benefit in diabetes of hepatic origin; and has been used against intermittents, typhoid fever, and various zymotic diseases; but is probably of no efficacy in constitutional affections. In phthisis and other chronic pulmonary diseases, it has been much employed as a spray by inhalation, and certainly does do good therein by relieving cough and irritation of the throat. In these affections, Creosote is preferred to it for both internal and local use. An acute conjunctivitis is greatly relieved by holding the open eye in the spray of a steam atomizer, the cup of which contains a 5 per cent. solution of carbolic acid. This measure may be also used for acute coryza with beneficial results; or a mixture of Carbolic Acid and Tincture of Iodine may be dropped on to a sponge in a wide-mouthed bottle and volatilized for inhalation by being wrapped in a cloth wrung out of hot water, or even by being held in the hand.

SULPHO-CARBOLATES of Sodium, Potassium, etc., have been employed internally with advantage in the septic diseases, as the exanthemata, diphtheria, puerperal fever, etc.,—the object being to obtain the antiseptic action of carbolic acid without the dangers attending its use in efficient doses. They may be used locally with good results in aphthæ, tonsillitis, otorrhœa, gonorrhœa, and for inflamed mucous membranes generally.

Creolin (Unofficial),—was the first form in which the cresols were presented in a liquid condition for use in medicine. It is a coal-tar product, occurring as a dark-brown, alkaline, semi-fluid substance, of the consistence of honey. It forms a white cloud when added to water, with which, however, it is miscible, as an emulsion, up to about 10 or 12 per cent. strength. The Solutions in general use vary from ½ to 2 per cent.; the Ointments to 5 per cent., and Creolin Gauze is prepared of 10 per cent. strength of the drug. Dose, ♏iij–v, in capsules.

Creolin was highly vaunted, by Professor von Esmarch and other authorities, as the ideal antiseptic for external use, being possessed of great germicidal power, and a most efficient deodorant and disinfectant, while its absorption caused no toxic results whatever. Experience has justified these claims in the main, but the drug has, however, given rise to serious symptoms, when used to excess. As a vaginal wash, in puerperal cases, the 2 per cent. solution is reported as fully equal to sublimate solutions, while better as a deodorant, and free from danger by absorption. The weaker solutions have given satisfaction as local applications in the treatment of otorrhœa, nasal ulcers, rhinitis (1 to 1000), blepharitis, keratitis, etc.; and in female cystitis a 1 per cent. solution as a vesical wash, gradually increased to 2 per cent., is highly praised by Parvin. The Ointments and Gauze are used for wounds and other solutions of continuity, in the same manner as carbolized preparations, and with better satisfaction, Creolin being less volatile than Carbolic Acid, and of a more agreeable, though powerful, odor. Internally it has been employed in gastric fermentation, dysentery, and typhoid fever.

Lysol (Unofficial),—one of the latest disinfectants and antiseptics, is a saponified product of coal-tar, chiefly composed of the cresols; and occurs as a clear, brown, oily liquid, mixible readily with water, and forming clear solutions with glycerin, alcohol, chloroform and various other fluids. As a microbicide it is superior to carbolic acid, creolin, and the other analogous coal-tar products, but has no advantage over the antiseptics of established reputation; and is only really efficient in solutions of such strength as to be irritating or caustic. Although not destined to play any great part in surgery, it may be useful in the prophylaxis and arrest of epidemics; and is likely to be particularly serviceable in the disinfection of premises, privies, ships and stables, being readily soluble, reasonably active, and very cheap (Squibb). Dr. Pee, who has had very favorable results from Lysol, recommends a one per cent. solution in obstetrics and gynecology, and says that a solution of one part in 200 destroys streptococci in fifteen minutes.

Saprol, *Disinfection Oil* (Unofficial),—is a dark brown, oily mixture, highly inflammable, and composed of the crude cresols in a great excess of the liquid hydrocarbons obtained from the refining of petroleum. It floats on water and yet gives up its soluble constituents as disinfectants to the offending fluid, leaving the remainder as an oily film on the surface to hinder the escape of disagreeable odors, and the spread of infecting spores. It is a cheap disinfectant, and can be employed on a large scale in barracks, prisons, schools, etc., if no light or fire is brought into proximity with it. Sewage treated with it still retains its value as a manure; and so small a quantity as one per cent. of it will effectually sterilize urine and fecal matter impregnated with micro-organisms like the bacilli of cholera and typhoid fever (Laser).

Solutol and **Solveol** (Unofficial),—are disinfectants of the same class as the preceding, both being soluble forms of the insoluble Cresol (Cresylic Acid). Solutol is an alkaline solution of Sodium Cresylate in an excess of Cresol, and is not suited for surgical use, by reason of its caustic alkalinity; but is of marked utility in the preservation of the cadaver, and for general and copious use in disinfecting water-closets, sinks, infected bed-clothing, sputa and deleterious discharges of all kinds.

Solveol differs from Solutol in containing Sodium Cresotate instead of sodium cresylate, is devoid of the causticity so characteristic of the latter substance, and is also free from the greasiness of Creolin and Lysol. It is a dark-colored, nearly odorless liquid, of neutral reaction, soluble in water in all proportions. It is especially applicable to surgical uses, a ½ per cent. solution being employed for dressings, being more active (it is claimed) antiseptically, than a 2 per cent. solution of carbolic acid.

ACIDUM CHROMICUM, Chromic Acid, CrO_3,—is obtained by the action of Sulphuric Acid upon Potassium Chromate, and occurs in small crimson needle-shaped crystals, deliquescent and very soluble in water. Brought in contact with alcohol mutual decomposition takes place. A similar result and perhaps sudden combustion occurs when it is placed in contact with other easily oxidizable substances, such as Glycerin, Spirit of Nitrous Ether, etc. It is not used internally.

Potassii Bichromas, *Potassium Bichromate*, $K_2Cr_2O_7$,—large, orange-red prisms of disagreeable, metallic taste and acid reaction, soluble in 10 of water at 59° F., and in 1½ of boiling water, insoluble in alcohol. Used locally in aqueous solution (gr. v–ʒj to the ℥), and internally in doses of gr. $\frac{1}{10}$–ij in trituration.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

CHROMIC ACID is a powerful escharotic, penetrating deeply, but slow of action and not very painful. It coagulates albumen and parts readily with its oxygen, oxidizing organic matter and decomposing ammonia and sulphuretted hydrogen; and is therefore an energetic disinfectant and deodorizer. When used as a caustic it is mixed with sufficient water to make a paste, which may be employed for the destruction of warts, hemorrhoids and other superficial growths; the neighboring parts being protected by cotton soaked in a strong alkaline solution. For syphilitic warts and condylomata, lupus, tinea tonsurans, etc., a solution of 100 grains to the ℥ of distilled water is generally used. A solution of 1 in 40 is an excellent and inexpensive antiseptic lotion for putrid sores and wounds, syphilitic affections of the tongue, mouth and throat, ozæna, leucorrhœa, and gonorrhœa. In uterine catarrh and hemorrhages a solution of 120 grains to the ℥ has been injected into the uterine cavity with good results.

Potassium Bichromate is a good antiseptic and an escharotic of milder action than the acid. In doses of ʒij–iv it has proved fatal to life in adults, with symptoms of gastro-enteritis, suppression of urine, and cardiac paralysis. It is chiefly employed as a local application in saturated solution to warts and venereal condylomata; and in dilute solution (gr. j–x to the ℥) for catarrhal conditions of the nasal, buccal or vaginal mucous membrane. Internally it has been employed with benefit in locomotor ataxia and in dyspepsia simulating gastric cancer; also in chronic gastric catarrh, the tongue having a thick yellow coat, in chronic diarrhœa from intestinal ulceration, and in chronic ulcers of the pharynx and mouth. It is a good remedy in syphilitic sore throat, local rheumatism of the fibrous tissues, periosteal and syphilitic rheumatism, and acute catarrh and influenza, chronic nasal catarrh, chronic laryngitis, and chronic catarrhal affections of the bronchial mucous membrane, especially when the expectoration is tough and stringy. It has also been used with some success in membranous croup and diphtheria. In pharmacy it is employed in the preparation of Chromic Acid and Valerianic Acid, and as a test solution. Most of the medical galvanic and faradic batteries are run by a mixture of this salt with Sulphuric Acid. *Poisoning* by it should be treated as directed for mineral acids.

ACIDUM FLUORICUM, **Fluoric Acid**, HF (Unofficial),—is a strong escharotic, acting deeply and leaving a dry and painful slough. The dilute acid (1 in 200) is prepared by acting on fluor spar by Sulphuric Acid, the resulting gas being dissolved in water. Its dose is ♏xx–xxx, well diluted.

Dilute Fluoric Acid has been successfully used as an internal remedy in goitre, and the gas has been inhaled with benefit in diphtheria and membranous croup.

ACIDUM GALLICUM, **Gallic Acid**, $HC_7H_5O_5.H_2O$,—is a nearly colorless solid in long needles or triclinic prisms, having a slightly acid and astringent taste, soluble in 100 of water and in 5 of alcohol at 59° F., and in 3 of boiling water. It is prepared from a paste of powdered galls (see Galla), by fermenting for six weeks, boiling and reboiling in water, filtering and crystallizing. According to some authorities the Tannic acid of the galls is split up into Gallic Acid and glucose by fermentation; but according to others the glucose is an impurity and the Tannic Acid is simply converted into two parts of Gallic Acid, $C_{14}H_{10}O_9 + H_2O = (HC_7H_5O_5)_2$. Dose, gr. v–xv, in solution, pill or powder.

Pyrogallol, *Pyrogallic Acid, Tri-hydroxy-benzene,* $C_6H_3(OH)_3$,—is a triatomic phenol, obtained chiefly by the dry distillation of Gallic Acid. Light white, shining laminæ, or fine needles, of bitter taste; soluble in water, alcohol and ether. Dose, gr. j–ij.

Vegetable Astringents depend for their medicinal value upon the Gallic and Tannic Acids contained in them. Such are—

Alnus, *Alder Bark.*
Castanea, *Chestnut Leaves.*
Catechu, *Catechu.*
Diospyros, *Persimmon.*
Galla, *Nut Galls.*
Geranium, *Cranesbill.*
Granatum, *Pomegranate.*
Hamamelis, *Witch Hazel.*
Hæmatoxylon, *Logwood.*
Heuchera, *Alum Root.*
Kino, *Kino.*
Krameria, *Rhatany.*
Myrica, *Wax Myrtle.*
Nymphæa, *Pond Lily.*
Quercus Alba, *Oak Bark.*
Rosa Gallica, *Red Rose.*
Rubus, *Blackberry.*
Statice, *Marsh Rosemary.*

PHYSIOLOGICAL ACTION.

GALLIC ACID, and its congener Tannic Acid, are astringents, the former being the more feeble of the two. They differ in that Tannic Acid coagulates albumen and gelatin, while Gallic does not. Tannic Acid is converted by the organism into Gallic and Pyrogallic Acids, in which forms it is absorbed and excreted. According to some authorities the difference between Gallic and Tannic Acids is one of oxidation, according to others of hydration; the latter assuming Tannic Acid to be simply Gallic Acid Anhydride. They constringe the muscular tissue in the walls of the minute vessels, thus checking secretion and hemorrhages and cutting short local inflammations. Except in enormous doses they are harmless. [Compare ACIDUM TANNICUM.]

PYROGALLOL may act as an intense poison. It has been absorbed from the surface with fatal results, preceded by vomiting and diarrhœa, rigors, and fever, black urine full of globulin, and disorganization of the blood-corpuscles. It has great affinity for oxygen and may be used as an antiseptic and disinfectant in 1 to 2½ per cent. solutions.

Antagonists and Incompatibles.

Mineral acids, alkalies, per-salts of iron, and salts of antimony, lead, and silver are chemically incompatible.

THERAPEUTICS.

GALLIC ACID is preferred to Tannic Acid when an astringent action is desired upon remote parts, as the lungs, kidneys, etc., which can only be reached through the circulation. In hematuria, distant passive hemorrhages, albuminuria, diabetes insipidus, bronchorrhœa, night-sweats, chronic diarrhœa, and chronic cystitis, it is a most useful remedy.

PYROGALLOL has been used internally in two-grain doses for internal hemorrhages. As an ointment (ʒj–℥j) it ranks next to Chrysarobin as an efficient palliative in psoriasis, and has been used with good results in lupus and epithelioma, being supposed to attack the diseased nodules only, leaving the adjacent skin uninjured.

ACIDUM HYDROBROMICUM DILUTUM, Diluted Hydrobromic Acid,—is composed of 10 per cent. of absolute Hydrobromic Acid (HBr), and 90 per cent. of water. It is a clear, colorless, and odorless liquid, of a pungent acid taste, produced by decomposing Potassium Bromide by Sulphuric Acid and distilling. Dose, ♏xx–ʒij, every three hours.

The action of Hydrobromic Acid on the nervous system and circulation is identical with that of the Bromides. Added to a mixture of Quinine and water (♏ij to each grain of Quinine) it will produce a clear solution.

In hysteria, congestive headaches, neuralgia, and nervous exhaustion, Hydrobromic Acid has been found useful. Used as a solvent of Quinine it retards cinchonism, and prevents the headache resulting from the full action of Quinine and Iron. As a substitute for the Bromides of Sodium and Potassium it is highly recommended, being much less depressant. It has been especially recommended in tinnitus aurium. Fothergill uses it for coughs of reflex or spasmodic nature, also for simple continued fever where there is cerebral disturbance.

ACIDUM HYDROCHLORICUM, Hydrochloric Acid, Muriatic Acid,—is a liquid composed of about 32 per cent. of absolute Hydrochloric Acid Gas, HCl, and 68 per cent of water. It is colorless and fuming, of specific gravity 1.163, pungent odor, intensely acid reaction and taste, and is obtained by the action of Sulphuric Acid upon Sodium Chloride, the resulting gas being carried through water, which dissolves it. It is sometimes used as a caustic. Its union with basic substances forms salts, called Hydrochlorates (Muriates), of which four are official, viz.—Apomorphine, Morphine, Pilocarpine, and Quinine Hydrochlorates, described under the titles of their respective bases.

Preparations.

Acidum Hydrochloricum Dilutum, *Diluted Hydrochloric Acid,*—is a 10 per cent. solution of the absolute acid in water. Dose, ♏iij–x.

Acidum Nitro-hydrochloricum, *Nitro-hydrochloric Acid,*—see under ACIDUM NITRICUM.

PHYSIOLOGICAL ACTION OF THE MINERAL ACIDS.

The mineral acids (Hydrochloric, Sulphuric, Nitric, Nitro-hydrochloric, and Phosphoric) resemble each other in general action so closely that they may all be described in this place.

The strong acids are escharotic, abstracting the water of the tissues, combining with the albumen and other bases, and destroying the protoplasm. They are very diffusible, redissolving the albumen after precipitating it (except Nitric Acid). Sulphuric and Phosphoric have a strong affinity for water, completely decomposing tissues to which they are applied, and are therefore the most powerfully escharotic. Nitric Acid does not readily redissolve the albumen precipitated by it, which thus forms a barrier against the deep action of the acid. Sulphuric Acid chars or carbonizes the tissues black, while Nitric and Hydrochloric tan them yellow.

The dilute acids produce a peculiar taste in the mouth and a sensation of roughness on the teeth. They stimulate the flow of saliva from the parotid and submaxillary glands, but have no action on the sympathetic saliva. They promote the alkaline intestinal secretions and excite the flow from glands having an alkaline secretion (bile, etc.), when applied to the mouths of their ducts, but check that from those whose secretion is acid (gastric, etc.). Secretion generally is promoted by Nitric Acid, and lessened by Sulphuric, Hydrochloric acting between the other two. Given before meals, in small doses, they relieve acidity of the stomach by checking the production of the acid gastric juice. At first they aid digestion, being synergistic to the action of pepsin, but if continued they impair digestion by lessening the production of the gastric juice. They check fermentation and constipate the bowels, except Nitric Acid, which relaxes them. They render the urine slightly more acid than its normal reaction, but do not acidify alkaline urine as the vegetable acids do. They are all astringent to the tissues, Hydrochloric being weakest and Sulphuric the strongest in this respect.

Antagonists and Incompatibles.

Alkalies to neutralize the acid; oil, albumen, or milk, to protect the mucous membrane; stimulants, *Opium*, *Ammonia* (intravenously), to combat the resulting depression of the vital powers.

THERAPEUTICS OF THE MINERAL ACIDS.

All the members of this group are useful in fevers, if well diluted, Hydrochloric being usually preferred, especially in typhoid. In atonic dyspepsia, acidity of the stomach, and locally in ulcerations of the throat, Hydrochloric Acid is best used. Nitric is the acid generally preferred as a caustic, its action being effectual and superficial. As such it is applied undiluted to phagedenic ulcers and sloughs, warty growths, and to the cavity of the womb in chronic inflammation thereof. Dilute Nitric Acid is used internally in oxaluria and lithæmia, intermittent and remittent fevers, and aphonia of singers. Dilute Nitro-hydrochloric is more suitable in chronic hepatic disorders due to malaria; Sulphuric in hemorrhages, diarrhœas, colliquative sweating, and as a prophylactic against lead-poisoning. Dilute Sulphuric Acid is used as an acid drink in fevers, and before meals in acidity of the stomach. It is very doubtful whether the latter has any special influence on the nervous or osseous systems.

All these acids act injuriously on the teeth, by attacking the enamel. They should always be administered largely diluted, taken through a straw or glass tube, and the mouth should be thoroughly rinsed at once with an alkaline solution.

ACIDUM HYDROCYANICUM DILUTUM, Diluted Hydrocyanic (Prussic) Acid,—is a liquid composed of 2 per cent. of absolute Hydrocyanic Acid, HCN, and 98 per cent. of water. It is colorless, faintly acid, of peculiar odor, and is prepared by distilling solutions of Potassium Ferrocyanide and Sulphuric Acid together, or extemporaneously by adding 6 grammes of Silver Cyanide to a solution of 5 Cc. of Hydrochloric Acid in 55 of distilled water, shaking together and pouring off the supernatant liquid. ♏xl have proved fatal. Dose, ♏j–v, of a recent preparation; as, even under the most favorable conditions, it will decompose within a year.

Preparations containing Hydrocyanic Acid.

Aqua Laurocerasi, *Cherry-laurel Water* (Unofficial),—is a water distilled from the fresh leaves of *Prunus laurocerasus*, the common Laurel or Cherry Laurel, a small tree of the nat. ord. Rosaceæ, sub-order Amygdaleæ. The leaves contain a variable amount of Hydrocyanic Acid and a volatile oil. Dose, ♏v–xxx, cautiously.

Scheele's Dilute Hydrocyanic Acid (Unofficial),—is a 4 or 5 per cent. solution, and is highly dangerous even by inhalation.

Amygdala Amara, *Bitter Almond* (see its title) and its essential oil; also, various other members of the sub-order Amygdaleæ, including the official *Prunus Virginiana*, perhaps the unofficial *Prunus laurocerasus*, and the leaves and kernels of the peach and cherry trees, contain a proximate principle *Amygdalin*, and a ferment *Emulsin*, which in the presence of water react on each other, forming Hydrocyanic Acid, a volatile oil, and glucose. $C_{20}H_{27}NO_{11}$ (Amygdalin) $+ 2H_2O = C_7H_6O$ (Oil of Bitter Almond) $+$ HCN (Hydrocyanic Acid) $+ 2C_6H_{12}O_6$ (Glucose).

Other Cyanogen Compounds.

Potassii Cyanidum, *Potassium Cyanide*, KCN,—a white, opaque salt, of alkaline reaction, bitter-almond taste and a peculiar odor when moist; soluble in 2 of water, sparingly soluble in alcohol. Dose, gr. $\frac{1}{20}$–$\frac{1}{2}$. Locally, a solution of gr. j–v to the ℥, is as strong as should be employed.

Potassii Ferrocyanidum, *Potassium Ferrocyanide*, $K_4Fe(CN)_6 3H_2O$,—large, lemon-yellow prisms or tablets, efflorescent, odorless, of sweetish taste and neutral reaction, soluble in 4 of water, insoluble in alcohol. Employed in pharmacy as a test solution, and in the preparation of Iron Ferrocyanide, Diluted Hydrocyanic Acid and Potassium and Silver Cyanides. Rarely used medicinally. Dose, gr. v–xv.

PHYSIOLOGICAL ACTION.

HYDROCYANIC ACID is one of the most powerful and rapid poisons known, half a grain having proved fatal almost immediately. Its action on the organism is one peculiar to itself, the inhalation of a strong preparation producing rapid insensibility and almost immediate exhaustion;—death from a full dose occurring by sudden paralysis of the heart, from a less but still a fatal dose, by paralysis of respiration. The symptoms are those of sudden and complete asphyxia, and some volitional movements may be made before death, unless the dose be very large. In cases in which the dose, though fatal, permitted of the observance of its effects, they were usually divisible into two marked stages, viz.: (1) Dyspnœa, slow and full pulse, giddiness, loss of muscular power;—(2) Vomiting, dilated pupils, unconsciousness, spasms, muscular rigidity, and cessation of the heart's action. In poisonous, but not fatal doses, the following effects have been observed: feeble pulse, dilated pupils, turgid and dusky face, insensibility, convulsions or rigidity, but no paralysis. Large medicinal doses may produce salivation, irritation of the throat, dizziness, buzzing in the ears, headache, numbness, dusky countenance, staggering gait, sense of constriction of the chest, palpitation of the heart, a frequent or an abnormally slow pulse, a sense of great weariness and drowsiness. Post-mortem examination usually shows dilated pupils, the eyes having a marked glassy lustre, the cadaveric rigidity very great. The blood, in cases which have been rapidly fatal, may show the arterial color in both the arterial and the venous systems; but in slower cases it is dark and fluid, engorging both sides of the heart, the venous trunks, and the cerebral sinuses. The paralyzant action of the drug is chiefly exercised on the nerve-centres in the medulla; next on the peripheral afferent nerves, the spinal cord, the motor nerves, and finally on the muscular tissue. It stops the heart by irritation of the vagus-roots in the medulla, as well as by paralyzing the cardiac motor ganglia. It is said to form with hæmoglobin a compound (cyan-hæmoglobin), which does not readily give up oxygen. The odor of the acid is fragrant, resembling that of bitter almonds or peaches, and may be detected in the lungs shortly after death. The effects of a medicinal dose pass off in an hour at the farthest.

Locally applied to the skin, Hydrocyanic Acid penetrates the epidermis and paralyzes the end-organs of the sensory nerves in the derma. It is rapidly absorbed from mucous surfaces.

POTASSIUM CYANIDE has similar action, but in addition has some few peculiar to itself. Locally used it produces dermatitis, with an eczematous eruption, and if applied to an abraded surface freely may cause fatal effects. Internally it has proved fatal in doses of 3 to 5 grains, with all the symptoms of Hydrocyanic Acid poisoning, but its action is less rapid. It is much used in photography, and many cases of poisoning by it have occurred in persons employed in that art.

Antagonists and Antidotes.

Atropine has antagonistic action, but is too slowly diffused to be of any value. *Ammonia* by inhalation, by the stomach, and by intra-venous injection, with cold affusion to the spine, and artificial respiration, are the measures most likely to avail in cases of poisoning where there is time to do anything. In poisoning by Potassium Cyanide give *Ferrous Sulphate*, producing Ferrocyanide of Iron (Prussian Blue). Then evacuation of the stomach, artificial respiration, and Ammonia by intra-venous injection.

THERAPEUTICS.

HYDROCYANIC ACID is used for its anti-spasmodic and sedative effects. In vomiting, whooping-cough, and coughs of spasmodic character, in asthma and other neuroses of the respiratory organs, in affections involving the pneumogastric nerve, vertigo and headache from stomachal derangements, gastralgia, painful dyspepsia, vomiting, etc., it is very efficient as a palliative. In acute mania and melancholia it has been used with advantage; and in various skin diseases, accompanied by itching, tingling, etc., its use as a lotion (♏xxx-ʒj ad ℥j Aquæ Rosæ) to the unbroken surface is prompt in relieving the pruritus and other distressing sensations. Only when recently prepared is it of any service; as, even under the most favorable conditions, it will undergo decomposition within a year.

Potassium Cyanide in ointment (gr. v ad ℥j) is used to allay pruritus, and in solution (gr. iij–v ad ℥j) is applied locally with benefit in reflex headaches, and is used as a wash to remove nitrate of silver stains. It has been used internally in doses of gr. j for acute articular rheumatism, but such employment of it is highly dangerous. In smaller doses (gr. ⅙–¼), it is a useful ingredient of cough mixtures, where Opium or its alkaloids are not admissible.

Potassium Ferrocyanide has been used in doses of 8 to 15 grains as an astringent and anodyne, but it is seldom employed in medicine.

Cherry-laurel Water has been extensively used as a flavoring agent, having a very agreeable taste. It is official in the British Pharmacopœia, and is supposed to be a rather elegant mode of administering Prussic Acid; but the uncertainty of its strength is such that it should never be used internally, except in very small quantities. It has been employed as an anæsthetic injection into the urethra prior to catheterization, and was formerly employed by ophthalmologists as an eye-wash in painful affections of that organ.

ACIDUM LACTICUM, Lactic Acid,—is a liquid composed of 75 per cent. of absolute Lactic Acid ($HC_3H_5O_3$) and 25 per cent. of water; nearly colorless, syrupy, odorless, of acid taste and reaction, freely miscible with water, alcohol and ether, but nearly insoluble in chloroform. It is produced by the lactic fermentation of sugar of milk or grape-sugar, has a sp. gr. of 1.213, and is difficult to obtain pure. It enters into Syrupus Calcii Lactophosphatis. Dose, ʒss–℥ss, well diluted.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Lactic Acid is found in the stomach as a product of the food, and combines with bases in the blood, forming lactates, which, being oxidized, are converted into carbonates. It aids digestion and promotes the appetite, but, in large doses, causes flatulence and much epigastric pain. Injected into the peritoneal cavity of animals, it excites endocarditis, and given in diabetes it has produced acute rheumatism and rheumatic endocarditis. Hence its supposed causation of acute rheumatism when in excess and free in the blood. It dissolves false membranes and also calcium phosphate.

It is used with benefit in diabetes, atonic dyspepsia, oxaluria, and in the lithic and phosphatic diatheses when due to imperfect digestion and assimilation. As a solvent of false membrane in croup and diphtheria it is unquestionably of great service but painful. In chronic cystitis it arrests the ammoniacal decomposition of the urine. As the acid found in the shops is generally of poor quality, disappointment in its use may be expected.

ACIDUM NITRICUM, Nitric Acid,—is a liquid composed of 68 per cent. of absolute Nitric Acid, HNO_3, and 32 per cent. of water.

It is colorless, fuming, very caustic and corrosive, of sp. gr. 1.414, strongly acid in reaction, and is obtained by the action of Sulphuric Acid on Potassium Nitrate. Is only used externally as a caustic.

Preparations.

Acidum Nitricum Dilutum, *Diluted Nitric Acid*,—has of the above 10 parts in 58 of Distilled Water, and contains 10 per cent. of absolute Nitric Acid. Dose ♏iij–xv, well diluted.

Acidum Nitrohydrochloricum, *Nitrohydrochloric Acid, Nitromuriatic Acid, Aqua Regia*,—a golden-yellow, fuming, corrosive liquid, composed of Nitric Acid 18 vols., Hydrochloric Acid 82 vols. Is wholly volatilized by heat, readily dissolves gold-leaf, and a drop added to test-solution of Potassium Iodide liberates Iodine in abundance. Dose, ♏j–viij, well diluted.

Acidum Nitrohydrochloricum Dilutum, *Diluted Nitrohydrochloric Acid*,—consists of Nitric Acid 4, Hydrochloric Acid 18, Water 78 vols. Dose, ♏ v–xx, well diluted.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The action and uses of these agents are described with those of the other mineral acids, under the title ACIDUM HYDROCHLORICUM. Some special properties are as follows:—

NITRIC ACID is an exceedingly powerful escharotic, but, as it coagulates and does not redissolve the albumen of the tissues, it forms a barrier to its own excessive action. The vapor may cause œdema of the glottis, intense bronchitis, etc., and death from suffocation. It is used for the destruction of chancres, warts, hemorrhoids, phagedenic ulcers, etc.; and internally in dilute form for bilious affections, as it is supposed to have a selective action on the liver. It also lessens phosphatic deposits in the urine, and acts as an astringent in the system, diminishing profuse secretion in bronchorrhœa and phthisis.

NITROHYDROCHLORIC ACID is also supposed to specially affect the liver. It is usefully employed in jaundice, dyspepsia, and the so-called bilious condition; also in frontal headache, situated just above the eyebrows, when unaccompanied by constipation, and in acidity of the stomach. In hepatic disorders it may be used in dilute form as baths, or applied to the hepatic region on compresses. The official dilute acid is of little use therapeutically, as it rapidly deteriorates, and the same may be said of the strong acid when standing long enough for the color to change to a lemon-yellow. The most efficient preparation is the strong acid freshly prepared, when it is of an orange-red color. This should be properly diluted when required for use, and should be constantly protected from light.

ACIDUM OLEICUM, Oleic Acid, $HC_{18}H_{33}O_2$,—is one of the constituent acids of oils and fats, obtained commercially as a secondary product in the manufacture of stearin candles. It is a yellowish oily liquid, semi-solid at 57° F., odorless, tasteless, and of neutral reaction, insoluble in water but soluble in alcohol, chloroform, benzol, benzin, turpentine, and the fixed oils. It dissolves most of the metallic oxides and the uncombined alkaloids, forming the so-called Oleates, which, however, are not pure chemical compounds, but merely compounds of the oxides or alkaloids, as the case may be, with oleic acid, dissolved in a great excess of the latter. Three of these are official, viz.:—

Preparations.

Oleatum Hydrargyri, *Oleate of Mercury*,—has 20 of the Yellow Oxide of Mercury, with 80 of Oleic Acid.

Oleatum Veratrinæ, *Oleate of Veratrine*,—has 2 of Veratrine in 98 of Oleic Acid.

Oleatum Zinci, *Oleate of Zinc*,—has 5 of Zinc Oxide in 95 of Oleic Acid.

Unofficial Preparations.

Oleates (Oleata) of *Aconitine* (2 per cent.), *Atropine* (2 per cent.), *Morphine* (10 per cent.), *Morphine and Mercury* (2 per cent. morphine and 20 per cent. mercuric oxide), *Quinine* (25 per cent.), *Strychnine* (2 per cent.), *Arsenic* (gr. xx of oleate of arsenic to the ℥), *Aluminum*, *Bismuth*, *Copper*, *Iron*, *Lead*, *Silver*, etc., are prepared by the manufacturing pharmacists, and are to be obtained in the shops. Most of them answer to the description given above, but several are Oleo-palmitates, or double salts of Oleic and Palmitic Acids, being prepared from oils which yield the latter acid in considerable quantity. Drs. Shoemaker and Wolff, of Philadelphia, have introduced, under the above names, several solid or semi-solid preparations, which they claim to be chemically true oleates, salts having no excess of either their acid or basic radicals. They are produced by the double decomposition of sodium oleate with solutions of neutral salts, the precipitates, washed and dried, being the oleates required. These oleates are claimed to be more stable than the official oleic solutions, and using less oleic acid are much less costly. Many of them may be used as dusting powders, or mixed with oil or lard to form ointments.

Physiological Action and Therapeutics.

Oleic Acid is only used in making the Oleates, which were introduced by Marshall, as substitutes for ointments, being cleaner, more elegant, and more penetrating, but decidedly more irritating if applied with friction. Their medicinal properties depend upon the bases employed, hence their actions and uses will be described under the corresponding basic heads. They should usually be diluted with an equal bulk of vaseline or olive oil before being rubbed into the skin, or they may produce a cutaneous eruption or even pustulation. As a rule, they should be lightly spread over the surface with the finger or a brush. As parasiticides, the Oleates of Copper and Mercury are most efficient, and in skin diseases generally these preparations are rapidly gaining favor.

ACIDUM PHOSPHORICUM, Phosphoric Acid,—is a liquid composed of 85 per cent. of Orthophosphoric Acid, H_3PO_4, and 15 per cent. of water, and is obtained by oxidizing Phosphorus by Nitric Acid. It is strongly acid, odorless, colorless, and of sp. gr. 1.710 at 59° F.

Preparations.

Acidum Phosphoricum Dilutum, *Diluted Phosphoric Acid*,—has of Phosphoric Acid 10 parts in 75 of Distilled Water, sp. gr. 1.057, and contains 10 per cent. of Orthophosphoric Acid. Dose, ♏ v–xxx, in sufficient water.

Phosphates of Ammonium, Ferrum, and Sodium, Syrupus Ferri, Quininæ et Strychninæ Phosphatum, and Acidum Hypophosphorosum Dilutum, are described under PHOSPHORUS.

The action and uses of Phosphoric Acid are described with those of the other Mineral Acids under ACIDUM HYDROCHLORICUM. It may be given in larger doses than the other acids without deranging digestion, and is therefore preferred in cases requiring acid treatment for a long period, as in diabetes, etc. It is considered of especial value in strumous affections, and it is thought to diminish the growth of osseous tumors, and to dissolve phosphatic deposits. As it contains no free phosphorus, it cannot be used to obtain the effects of that drug.

ACIDUM PICRICUM, Picric Acid, *Carbazotic Acid, Trinitrophenol,* $C_6H_3(NO_2)_3O$ (Unofficial),—is obtained by the action of Nitric Acid on Carbolic Acid, or many other substances. It has recently been introduced as a test for albumen and sugar in the urine. A saturated aqueous solution has been used locally in erysipelas with some advantage. Some of its salts (Picrates of Ammonium, Iron, etc.) have been tried therapeutically, without any particular results. Powers as an antiperiodic and anthelmintic and against trichinæ have been urged for it, but experience has not supported these claims. Dose, gr. v–xv per diem.

Ammonium Picrate, in doses of gr. ⅛ to gr. jss, in pill, four times daily, has been used in the malarial fevers of India, in over 10,000 cases with most effective results.

ACIDUM SULPHURICUM, Sulphuric Acid,—is a strongly caustic and corrosive liquid, oily, inodorous, of a strong acid reaction, composed of not less than 92½ per cent. of absolute Sulphuric Acid (H_2SO_4) and 7½ per cent. of water. It is obtained by the combustion of Sulphur and its oxidation by nitrous fumes. Its specific gravity should not be below 1.835, and it is miscible in all proportions with water and alcohol, with evolution of heat. Occasionally used as a caustic.

Preparations.

Acidum Sulphuricum Dilutum, *Diluted Sulphuric Acid,*—has of the strong acid 1 part to 8¼ of distilled water, and contains 10 per cent., by weight, of absolute sulphuric acid. Dose, ♏ v–xv, well diluted.

Acidum Sulphuricum Aromaticum, *Aromatic Sulphuric Acid, Elixir of Vitriol,*—is Sulphuric Acid 10 per cent. by volume, 20 per cent. by weight, diluted with Alcohol and flavored with Cinnamon and Ginger. It is not an acid, but rather an ether formed by reaction between the acid and the alcohol. Dose, ♏ v–xv, well diluted.

The action and uses of Sulphuric Acid generally are described with those of the other Mineral Acids under ACIDUM HYDROCHLORICUM. Its chief use internally is in lead-poisoning, to form the insoluble sulphate, and as a remote astringent in diarrhœa, hemorrhoids, hemorrhages, night-sweats, and mucous discharges. In choleraic diarrhœa and lead poisoning it is generally administered in combination with Opium. The only hemorrhages in which it is efficient are those from mucous surfaces. It is exerted chiefly by the kidneys, part escaping by the bowels as sulphates, part also by the skin. Like the other mineral acids, it does not increase the acidity of the urine to any considerable extent. Its principal actions are those of an astringent, an anhydrotic and a hemostatic.

ACIDUM SULPHUROSUM, Sulphurous Acid,—is a colorless liquid, of sulphurous taste and very acid reaction, composed of not less than 6.4 per cent., by weight, of Sulphurous Acid Gas (SO_2) and 93.6 per cent. of water. It is prepared by heating Sulphuric Acid with charcoal and dissolving the gas produced in distilled water. Dose, ♏ v–ʒj, largely diluted with water.

Preparations.

Sodii Sulphis, *Sodium Sulphite,* $Na_2SO_3.7H_2O$,—colorless, transparent, monoclinic prisms, efflorescent in dry air, of cooling, saline, and sulphurous taste, and neutral or feebly alkaline reaction; soluble in 4 of water at 59° F., and in 0.9 of boiling water, very slighly soluble in alcohol. Dose, gr. v–xx.

Sodii Bisulphis, *Sodium Bisulphite,* $NaHSO_3$,—opaque prismatic crystals, or a crystalline or granular powder, slowly oxidized in the air; of faint, sulphurous odor, a disagreeable taste, and an acid reaction; soluble in 4 of water and in 72 of alcohol at 59° F., in 2 of boiling water, and in 49 of boiling alcohol. By strong heat it is converted into sulphur and sulphate of sodium. Dose, gr. iij–x.

Sodii Hyposulphis, *Sodium Hyposulphite,* $Na_2S_2O_3.5H_2O$,—large, colorless, monoclinic prisms or plates, efflorescent in dry air, of cooling and bitter taste, and neutral or faintly alkaline reaction; soluble in 1.5 of water at 59° F., and in 0.5 of boiling water, which partly decomposes it; insoluble in alcohol. Dose, gr. v–xx.

Antagonists and Incompatibles.

All oxidizing substances change the Sulphites into Sulphates, and the mineral acids decompose them.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

SULPHUROUS ACID has great affinity for oxygen, and is a powerful disinfectant and deodorizer, and very destructive to all plant life. The gas inhaled is irritant to the glottis, and may produce dangerous inflammation of the respiratory passages.

Sulphurous Acid Gas (Sulphurous Anhydride) is extensively used as a disinfectant, being the most powerful and convenient agent for this purpose. Sulphur is burned on a shovel or plate in the room to be fumigated, all outlets having been carefully closed. It is injurious to many fabrics,

Sulphurous Acid is used locally in many throat affections as a spray or by a mop. In diphtheria, stomatitis, aphthæ, ulcers of the tonsils, syphilitic and tuberculous laryngitis, chronic bronchitis, etc., it may be thus applied with great benefit. Morbid fermentation in the stomach with growth of penicillium and sarcinæ is quickly stopped by 5 to 60-minim doses in water, or by the sulphites in 20-grain doses. In parasitic skin diseases and foul wounds these agents are extremely useful as local applications.

THE SULPHITES AND HYPOSULPHITES are partly decomposed by the acid of the stomach, sulphurous acid being given off, and the balance being converted into sulphates act as purgatives, and are absorbed, undergoing elimination as sulphates by the kidneys and bowels. They were formerly supposed to enter the blood and tissues as sulphites, and to arrest morbid processes of the zymotic character, but both these assumptions have proven erroneous. The Sulphites were used in zymotic and septic fevers as internal antiseptics on theoretical grounds, but their supposed value has not been realized.

ACIDUM TANNICUM, Tannic Acid, Gallotannic Acid, Digallic Acid, *Tannin,* $HC_{14}H_9O_9$,—is a solid body in light-yellowish scales, of strongly astringent taste and acid reaction, obtained from powdered galls (see GALLA), by exposure for three days in a damp atmosphere, then macerating with ether, pressing, and drying the liquid portion. It is soluble in 1 of water, in 0.6 of alcohol, at 59° F., and in about 1 of glycerin with moderate heat; very soluble in boiling water and in boiling alcohol, almost insoluble in ether, chloroform, benzol or benzin. Dose, gr. j–xx, in wafer, pill or capsule.

Preparations.

Unguentum **Acidi Tannici,** *Ointment of Tannic Acid,*—is a 20 per cent. ointment, made with Benzoinated Lard.

Trochisci **Acidi Tannici,** *Troches of Tannic Acid,*—each troche contains nearly one grain of Tannic Acid.

Glyceritum **Acidi Tannici,** *Glycerite of Tannic Acid,*—strength 1 part in 4 of Glycerin.

Suppositoria **Acidi Tannici,** *Suppositories of Tannic Acid,* (Unofficial),—have 1 part in 5 of Cacao Butter.

Collodium **Stypticum,** *Styptic Collodion,*—has of Tannic Acid 20, Alcohol 5, Ether 25, Collodion to make 100 parts.

Vegetable **Astringents** contain some form of tannic acid, as *Quercitannic Acid* from *Oak-bark, Rhatania-tannic Acid* in *Rhatany,* etc. (For list, see page 71.) The official acid is *Gallo-tannic Acid,* being that produced from Galls.

Antagonists and Incompatibles.

Mineral acids, alkalies, persalts of iron, and salts of antimony, lead and silver, are chemically incompatible. Vegetable alkaloids and gelatin form insoluble precipitates with Tannic Acid.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

TANNIC ACID is a powerful astringent. It precipitates pepsin and coagulates albumen, impairs digestion, stops peristalsis, and causes constipation. A part of that taken into the stomach unites with the pepsin and albumen, while a part is converted into Gallic and Pyrogallic Acids, and in this form is both absorbed and excreted. It is a crystalloidal body, but combines with colloids, and is a valuable antidote in poisoning by the alkaloids and tartar emetic, with which it forms tannates which are nearly insoluble. Its continued use disorders digestion, irritates the mucous membranes, and produces emaciation. Injected into the veins it forms emboli and thus may cause death, but by the stomach it is non-toxic. Some authorities hold that Tannic Acid is merely Gallic Acid Anhydride; others believe that the difference between them is one of oxidation. Gallic Acid does not coagulate albumen or gelatin, while Tannic Acid does.

Tannic Acid is a more powerful astringent than Gallic Acid, and hence is preferred for local use and for astringent effect on the intestinal canal. It is well employed in hemorrhoids and hemorrhages from the lower bowel, in hematemesis, epistaxis, rectal ulcers or fissures, catarrhs and chronic affections of the mucous membranes, endocervicitis, conjunctivitis, dysentery and diarrhœas, eczema, impetigo and other forms of skin-disease, otorrhœa, bed-sores, prolapsus ani, and many other affections.

STYPTIC COLLODION is used to stanch the bleeding from an open wound, to unite and protect incised or lacerated wounds, and to cover and change the character of foul ulcers.

ACIDUM TARTARICUM, Tartaric Acid, $H_2C_4H_4O_6$,—is a crystalline acid, prepared from Potassium Bitartrate (Acid Tartrate of Potassium, Cream of Tartar), by neutralizing a solution thereof with chalk and calcium chloride, then decomposing the calcium tartrate thus formed by sulphuric acid, evaporating and purifying. It occurs in colorless, transparent prisms, which are odorless, of acid taste and reaction, and soluble in 0.8 of water and in 2½ of alcohol at 59° F. Twenty grains exactly neutralize 27 of Potassium Bicarbonate, 22 of Sodium Bicarbonate, or 15½ of Ammonium Carbonate. Dose, gr. x–xxx.

Preparations.

Tartaric Acid is an ingredient of the Effervescing Powders (see under POTASSIUM). Five Tartrates and one Bitartrate (see Index) are official, and are described, with their actions and uses, under the titles of their respective bases. For *Potassium Bitartrate* see under POTASSIUM. The *Alkaline Cupric Tartrate Volumetric* (Fehling's) *Solution* is described in the Appendix.

The actions and uses of Tartaric Acid are similar to those of the other Vegetable Acids, as described under ACIDUM ACETICUM. It is chiefly employed in the preparation of effervescing refrigerant drinks and effervescing granulated salts.

ACONITUM, Aconite,—is the tuber of *Aconitum Napellus*, a perennial plant of the nat. ord. Ranunculaceæ (Monkshood), found in mountainous regions of Europe, Asia and N. America. This plant has deep-blue, helmet-shaped flowers, and leaves which have deeply-cut, wedge-shaped segments, exciting slowly when chewed a sensation of tingling in the tongue and lips. The root is conical and tapering, from 2 to 3 inches long, dark-brown externally, whitish internally, having a thick bark enclosing a seven-rayed, star-shaped pith, odorless, taste sweetish at first, soon becoming acrid. A minute portion, cautiously chewed, causes prolonged tingling and numbness. Its active principle is the alkaloid *Aconitine* (see below), which it contains in the proportion of .03 per cent. It also contains gum, sugar, *Aconitic Acid*, and several other principles, viz.—*Aconine, Napelline, Pseudaconitine, Lyctonine*, etc., concerning which there is much diversity of opinion. Dose, gr. ½–ij.

Other aconite-roots are those of *A. Cammarum*, *A. ferox*, and the Chinese or Japanese Aconite, *A. Chinense vel Japonicum*. From the latter an alkaloid is obtained, named *Japaconitine*, which is even more poisonous than pseud-aconitine. The Indian variety (*A. ferox*) contains pseud-aconitine but does not yield aconitine. The former is considered to be more active than the latter, and Japaconitine more so than either the other two.

Preparations.

Extractum Aconiti, *Extract of Aconite*,—is at least four times as strong as the extract official in the U. S. P., 1870, which was prepared from the leaves, and is yet to be found in the shops. Dose, gr. ⅙–⅓.

Extractum Aconiti Fluidum, *Fluid Extract of Aconite*,—each drop represents nearly one grain of the powdered drug: an alcoholic preparation. Dose, ℳ ½–ij.

Tinctura Aconiti, *Tincture of Aconite*,—has of Aconite 35, Alcohol and Water to 100. Is about 25 times stronger than the tincture of the leaf formerly official. Dose, ℳ ½–iij.

Tinctures of Aconite root vary greatly in strength. In Fleming's Tincture 79 parts of aconite are used in preparing 100 of the tincture, in that of the Br. P. 16, in the French 20, the German 10, while the Linimentum Aconiti (B. P.) is really a very strong tincture, of the strength of 1 to ½. Probably the best and safest preparation for ordinary use is a 10 per cent. tincture, of which the maximum single dose for an adult is stated in the P. Ger. at ℳ ix, and the maximum daily dose at ℳ xxxv.

The best rule for the administration of aconite preparations is to give the minimum dose at intervals of 15 to 20 minutes, until the desired effect is produced.

Unofficial Preparations.

Aconitina, *Aconitine*, $C_{33}H_{43}NO_{12}$,—a white, and usually amorphous solid, of alkaline reaction, soluble in 150 of cold and 50 of hot water; much more soluble in alcohol and ether. Is difficult to obtain of constant strength, some samples being all but inert, others extremely active. As obtained in the shops it is usually a mixture of several alkaloids. The *Aconitine Crystalisèe* of Duquesnel, which, according to Squibb, is a nitrate of aconitine, is considered to be the most active of those in the market. Dose, gr. $\frac{1}{200}$–$\frac{1}{50}$.

Oleatum Aconitinæ, *Oleate of Aconitine*,—is a 2 per cent. solution in Oleic Acid, for external use. Duquesnel's crystals will not dissolve in Oleic Acid (Squibb).

Napellina, *Napelline*,—is weaker than Aconitine, and has been used in doses of gr. ½–1. It has lately been studied by Laborde, who claims for it most valuable hypnotic properties, and proposes to use it as a substitute for opium and chloral.

St. Jacob's Oil (a patent medicine),—is a weak Aconite Liniment, which also contains Ether, Alcohol, Turpentine, red coloring matter and water (Squibb). See Appendix.

PHYSIOLOGICAL ACTION.

Aconite is a powerful depressant of the sensory nerve ends, the heart, the respiration and the spinal system. It is also antipyretic, diaphoretic and diuretic. It acts chiefly on the peripheral ends of the sensory nerves, but paralyzes both the motor and sensory nerves—the sensory being affected first and from the periphery inwards, while the motor nerves are affected from the centres outwards. It stimulates at first but soon relaxes the inhibitory apparatus of the heart, and paralyzes finally the vagus ends, the cardiac muscle and its contained ganglia, the respiratory centres, and the spinal cord in all its functions—sensory, reflex and motor; but does not affect the cerebrum.

The primary stimulation which the drug produces upon the vagus centre in the medulla slows the heart-rate at first; but its depressant action upon the motor cardiac centres and the vagus end-organs in the heart, is soon manifested; and finally the vagus centre shares in the increasing paralysis, which affects the vaso-motor centre as well as the cardiac nervous apparatus. The heart-rate becomes very rapid near the end, from paralysis of the vagus ends in its structure.

Its taste is bitter, acrid and pungent. Soon after the ingestion of even a small quantity, a sensation of numbness and a persistent tingling are felt in the tongue and lips. Full medicinal doses cause a sense of constriction in the fauces, irritation of the gastro-intestinal mucous membrane with increased secretion; sometimes nausea and vomiting, and severe pains in the joints and muscles; always more or less salivation, diaphoresis and diuresis; reduced respiratory power, cardiac rate and force; lowered arterial tension and temperature.

A lethal dose produces great muscular weakness, dim sight, dilated (sometimes contracted) pupils; shallow, irregular, and labored respiration, slow and weak pulse, cold surface, clammy sweat, great anxiety, numbness and tingling in the extremities, lowered body-temperature (2° to 3°), abolished sensation, impaired reflexes and motility, and finally death from paralysis of the heart and respiration, with or without convulsions, consciousness being preserved until near the end, when CO_2 narcosis sets in. In two recorded cases, œdema of the entire body resulted from Aconite-poisoning by eating the leaves of the growing plant.

Aconite is rapidly diffused and slowly excreted, the effects of a full medicinal dose continuing for three or four hours. Applied externally, it paralyzes the sensory nerves of the part, producing its characteristic numbness and tingling.

Antagonists.

Caffeine, *Atropine*, *Morphine*, *Ether*, *Ammonia* and *Amyl Nitrite* antagonize its effects on the heart and respiration. *Digitalis* counteracts its heart action and the relaxation of cardiac inhibition. In Aconite poisoning, the stomach should be evacuated, warmth applied to the extremities, stimulants administered, artificial respiration if necessary, and the recumbent posture strictly maintained. *Caffeine* may be administered hypodermically and per orem.

THERAPEUTICS.

Aconite antagonizes the fever process, and rightly used is therefore one of the most valuable drugs we possess. It has well been called the "therapeutic lancet," and is certainly responsible to a great extent for the disuse of venesection. Its power over the circulation, respiration and transpiration renders it of the greatest value in all affections characterized by high, resisting pulse, dry hot skin, and elevated body-temperature. It is especially useful in acute throat affections, the early stage of acute inflammations of the respiratory organs, catarrhal croup, acute pleuritis and peritonitis before the stage of effusion, simple and eruptive fevers, puerperal and surgical fevers, facial erysipelas, acute rheumatism, cardiac affections with overaction or hypertrophy and without valvular lesion, diarrhœa and dysentery from cold or exposure, menstrual suppression from chill, and neuralgia of the 5th (externally and internally), it having a very positive and selective influence on that nerve. It is also highly recommended in otitis, nervous palpitations, restlessness, and sick headache, as also in the acute stage of gonorrhœa.

Aconite is best administered in small doses frequently repeated; from half a drop to a drop of the tincture every fifteen minutes in a teaspoonful of water, as a rule gives better results than do proportionately larger doses at longer intervals.

Aconitine has been remarkably efficient in trigeminal neuralgia;—so also has Napelline been in the same affection, and as an hypnotic it is well mentioned by several observers of authority.

ADEPS, Lard,—is the prepared internal fat of the abdomen of *Sus Scrofa* (Pig), purified by washing, melting and straining. A soft, white, unctuous solid, of bland taste and neutral reaction, entirely soluble in ether, benzin, and bisulphide of carbon; composed of 38 per cent. of Stearin and Margarin, and 62 per cent. of Olein. Lard forms 70 per cent. of Ceratum, and 80 per cent. of Unguentum, and enters into the composition of several of the official cerates.

Fats are formed of the immediate principles, *Stearin*, *Margarin* and *Olein*, which are regarded as salts composed of stearic, margaric and oleic acids with a common base, glycerin; also odorous and coloring principles.

Preparations.

Adeps **Benzoinatus,** *Benzoinated Lard,*—has 2 per cent. of Benzoin in powder, incorporated by stirring.

Oleum **Adipis,** *Lard Oil,*—is a fixed oil expressed from lard at a low temperature.

The actions of the Oils and Fats are described under MORRHUÆ OLEUM.

Lard is only used as an ingredient of ointments and cerates. Lard Oil is used in making the Unguentum Hydrargyri Nitratis, but has been proposed as an inferior substitute for Cod-liver oil in cases where the taste of the latter is particularly offensive.

Adeps **Lanæ Hydrosus,** *Hydrous Wool-fat, Lanolin,*—is the purified fat of the wool of sheep, mixed with not more than 30 per cent. of water. A yellowish-white, ointment-like mass, having a faint, peculiar odor; insoluble in water but miscible with twice its weight thereof.

Under the name LANOLIN this substance was in use for several years before it became official. It is a cholesterin fat, and a very old medicament, having been mentioned by Ovid, Herodotus, Pliny and Aristophanes; yet the process for obtaining it from the suds from the washings of sheep's wool is patented in this country by Liebrich. It differs from all other fatty substances chiefly in resisting saponification and the action of water, having no tendency to become rancid; and readily passes through the integument, carrying with it any medicament with which it is charged. It is a perfectly neutral base, and therefore is not liable to decompose any ordinary substance. The difficulty about its use has been its very disagreeably sheepy smell, but recent samples seem in great measure to be devoid of this objectionable quality. It is particularly useful in chronic skin diseases where there is infiltration, and where a penetrative action is desired for medicaments locally applied. In a few cases of acute and subacute eczema it has proved irritating, but as a rule it is perfectly bland. Where a simple protective action is alone desired it is inferior to Lard, Vaseline or Cold Cream.

Acidum Stearicum, *Stearic Acid,*—is an organic acid, usually obtained from the more solid fats, chiefly tallow. In its impure, commercial form, it occurs as a hard, white, glossy solid, odorless and tasteless, permanent in the air; insoluble in water, soluble in 45 of alcohol, also in ether. It is used as a substitute for wax, and is an ingredient of the Suppositoria Glycerini.

ÆTHER, Ether, Ethyl Oxide $(C_2H_5)_2O$,—in its absolute form is not official, the strongest preparation containing 4 per cent. of alcohol and some water. Considered as a generic term, an ether is analogous to a salt, as an alcohol is to a metallic hydrate. The particular ether officially so named is *Ethyl Oxide*, prepared from Ethyl Hydrate (Ethylic Alcohol) by a dehydrating agent with the aid of heat, and then purified by various processes. The agent used is Sulphuric Acid, hence this ether is improperly called "Sulphuric Ether," but the acid simply dehydrates the alcohol and remains in the retort, becoming constantly more diluted by the abstraction of water from the alcohol. Consequently H_2O is the difference between Alcohol and Ether. $(C_2H_6O)_2 - H_2O = (C_2H_5)_2O$. The official ethers are the two following, viz.—

Æther, *Ether*,—is a volatile and inflammable liquid, composed of about 96 per cent. of absolute Ether, Ethyl Oxide, and about 4 per cent. of Alcohol containing a little water. Sp. gr. 0.725 to 0.728 at 59° F. It is the preparation employed for anæsthetic use, and is generally though improperly called "Sulphuric Ether," a term which belongs to Ethyl Sulphate $(C_4H_{10}SO_4)$. The dose of Æther for internal administration is ♏x–ʒj, in syrup; hypodermically, for heart failure, ♏xv–xxx. It is best prescribed as Spirit of Ether, which mixes readily with water.

Water dissolves a tenth of its volume of Ether, and reciprocally Ether takes up about the same proportion of water. It is colorless, of a strong and characteristic odor, hot and pungent in taste. It evaporates speedily in the open air, with the production of considerable cold. When good, it evaporates from the hand, without leaving a disagreeable odor. It boils at about the temperature of the body (98.6° Fah.), and its vapor is very heavy and very inflammable. It dissolves Hydrargyrum Bichloride, Hydrargyrum Iodidum Rubrum, Iodine and Bromine freely; Sulphur and Phosphorus sparingly. It is also a solvent of the fixed and volatile oils, many resins and balsams, caoutchouc, and most of the organic vegetable alkaloids. It does not dissolve Potash or Soda, in which respect it differs from Alcohol.

Æther Aceticus, *Acetic Ether*, *Ethyl Acetate*, $C_2H_5C_2H_3O$,—is an inflammable liquid, transparent and colorless, of ethereal and acetous odor, soluble in alcohol, ether, chloroform, and in 8 of water. Sp. gr. 0.893 to 0.895. It is a constituent of Sp. Odoratus and Tr. Ferri Acetatis. Dose, ♏x–ʒj.

Hydrobromic Ether, *Ethyl Bromide*, C_2H_5Br (Unofficial),—is not inflammable. Dose, internally and hypodermically, ♏x–ʒj.

Hydriodic Ether, *Ethyl Iodide*, C_2H_5I (Unofficial),—is a colorless liquid, non-inflammable, and insoluble in water. Dose, inhaled, ♏xv.

For the Chlorinated Ethers see under CHLOROFORM.

Preparations.

Oleum Æthereum, *Ethereal Oil*,—is a volatile liquid, consisting of equal volumes of heavy Oil of Wine and Ether. Used to prepare the Spt. Ætheris Comp. As it occurs in commerce is usually a worthless preparation.

Spiritus Ætheris, *Spirit of Ether*,—has of Ether 325 parts, Alcohol 675. Dose, ♏x–ʒj.

Spiritus Ætheris Compositus, *Hoffmann's Anodyne,*—contains Ether 325, Alcohol 650, Ethereal Oil 25 parts. Dose, ♏ v–ʒ j.

Spiritus Ætheris Nitrosi, *Spirit of Nitrous Ether, Sweet Spirit of Nitre,*—is an alcoholic solution of Ethyl Nitrite, $C_2H_5NO_2$, containing 5 per cent. of the crude ether. It turns acid with age, and should not be kept long. It is a constituent of Mist. Glycyrrhizæ Co. (3 per cent.). Dose, ʒ ss–℥ ss. Its incompatibles are Potassium Iodide, Ferric Sulphate, Tr. Guaiaci, Tannic and Gallic Acids, and Antipyrin.

Anæsthetic Mixtures.

Nussbaum's has—Ether 3 parts, Chloroform 1, Alcohol 1.
Vienna General Hospital uses—Ether 9, Chloroform 30, Alcohol 9.
The "*Vienna Mixture,*"—Ether 3, Chloroform 1.
Medico-Chirurgical Society of London (1864) proposed—Ether 3, Chloroform 2, Alcohol 1.

PHYSIOLOGICAL ACTION OF ETHER.

ETHER is anodyne, antispasmodic, diaphoretic and anthelmintic; a cardiac and cerebral stimulant, an anæsthetic, and a narcotic poison. Given internally, it is one of the most powerful stimulants of the secretions, acting especially on the secretions of the stomach, salivary glands and pancreas. On the cerebrum and the motor and sensory nerves its action is similar to that of alcohol, but more prompt and less protracted. It is eliminated rapidly, chiefly by the lungs. Externally it is a powerful refrigerant and local anæsthetic; also rubefacient when rubbed into the skin.

Inhaled Ether produces at first faucial irritation, a sense of strangulation and cough; then a stage of excitement (cerebral intoxication), in which the face is flushed and the respiration and pulse are accelerated. A tetanic convulsive stage generally follows, the face being cyanosed, the muscles rigid, and the respiration stertorous. This soon subsides, and complete insensibility is established, the muscles being then relaxed, the reflexes abolished, and the cerebral functions suspended, the lower centres in the medulla carrying on the processes of respiration and circulation. If the inhalation be continued, these also become paralyzed, death usually resulting from slow paralysis of respiration, the heart pulsating long after breathing has ceased. If the inhalation be discontinued before the lower centres are affected, the patient gradually emerges from the condition of insensibility, and, as the narcosis subsides, vomiting is usually experienced.

Dr. Brunton found that in a hot climate Ether will decompose within a few hours, and hence, during his investigations for the Hyderabad Chloroform Committee, he found it impossible to obtain pure ether. This may account for the preference for Chloroform as an anæsthetic which is so universal in the Southern States.

ETHER COMPARED WITH CHLOROFORM.

Ether is less irritant than Chloroform to the mucous membranes when swallowed, but its vapor is more irritant to the air-passages. It is more of a general stimulant, and less depressant to the heart and circulation.

It does not clot the blood. Its vapor is very inflammable, less pleasant to inhale, slower in action, has a longer stage of excitement, and a less profound narcosis, and causes a greater degree of vomiting. It is much less dangerous than Chloroform, death from the inhalation of Ether occurring slowly and usually by paralysis of respiration—from Chloroform, it is almost always sudden. Ether has undoubtedly caused a number of deaths, besides several which occurred some hours after the anæsthesia.

Modes of Dying from Anæsthetics.

(1.) From sudden paralysis of the cardiac ganglia, early in the inhalation, by reflex action proceeding from some peripheral injury before complete anæsthesia is produced. Thus, in the extraction of teeth, a small quantity of Chloroform having been administered, the heart is enfeebled, and the action of the cerebral hemispheres suspended, but not those of the basal or medullary ganglia. If at this stage the 5th nerve be irritated, by the intimate relation of its nucleus with that of the pneumogastric reflex inhibition may be transmitted over the latter, arresting the cardiac ganglia. The stage of incomplete anæsthesia is always a dangerous one in which to perform any operation around the distribution of the 5th nerve.

(2.) In the stage of rigidity, from tetanic fixation of the respiratory muscles, the blood backing up on the venous side, and arresting the heart's action, respiration ceasing before the cardiac action is stopped.

(3.) In the stage of complete relaxation, by paralysis of respiration; or by paralysis of the tongue, causing obstructed respiration.

(4.) In the same stage, by paralysis of the motor ganglia of the heart.

(5.) From depression of the functions by chloroform narcosis, and from shock,—and may occur in the anæsthetic state, or afterwards.

CONTRAINDICATIONS FOR ANÆSTHESIA are—fatty degeneration or dilatation of the heart, renal and pulmonary disease, enlarged tonsils, cerebral tumor, and chronic alcoholism—particularly the first and last named.

DANGEROUS SYMPTOMS should be met by withdrawing the vapor and inverting the patient head downwards, drawing the tongue forwards, and applying a cold douche to the face and chest. *Atropine* hypodermically is an agent of great value in combating the cardiac failure,—artificial respiration and faradization of the respiratory muscles if breathing ceases. *Amyl Nitrite* by inhalation, or *Ammonia* hypodermically. Heat to the body and limbs.

Pental, *Tri-methyl-ethylene*, C_5H_{10} (Unofficial),—is a colorless liquid, highly inflammable, insoluble in water, but miscible in all proportions with alcohol, ether and chloroform. Sp. gr. 0.678. It is obtained by heating amylene hydrate in the presence of acids.

Pental is an efficient anæsthetic, equal to Nitrous Oxide in its rapidity of action and safety, but superior thereto in its more prolonged action and its having no unpleasant after-effects. Under it there is seldom any stage of exhilaration, and consciousness is sufficiently retained to enable response to commands, even when insensibility to pain is reached. It does not lose its effect by repeated inhalations. Compared with Chloroform, it acts more promptly, and has no evil after-effects; with Ethyl Bromide, it is somewhat slower in action but more lasting in effect, and can be prolonged as may be necessary; with Nitrous Oxide, it can be continued for a longer time, is more safe, and free from after-effects of unpleasant character.

A comparison of these agents in respect to their safety has been made by Dr. Richardson, who considers *Methylic Ether* to be the safest of all, and the others as follows:

Safe are—Ethyl Bromide, Ethyl Chloride, Ether, Ethene (olefiant gas), Ethene Chloride, Methyl Bromide, Methyl Chloride, Methyl Ether, Methene Chloride, Methane (marsh gas), Nitrous Oxide.

Of doubtful value are—Amylene, Amyl Chloride, Butyl Chloride, Benzene (benzol), Carbon Bisulphide, Carbon Dioxide, Carbon Tetrachloride, Methyl Alcohol, Methylal, Spirits of Turpentine.

Dangerous are—Amyl Hydride, Butyl Hydride, Carbon Monoxide, Ethyl Hydride. Chloroform and Ethene Dichloride are considered useful, but requiring care.

PHYSIOLOGICAL ACTION OF OTHER ETHERS.

HYDRIODIC ETHER is an antispasmodic and a general stimulant; also an anæsthetic if inhaled for a sufficiently long time. Its use as a medicinal agent is chiefly to bring the system rapidly under the influence of iodine. It increases appetite, stimulates the action of the heart, gives vivacity to the general feelings and activity to the intellect.

HYDROBROMIC ETHER has a not unpleasant odor, produces but little irritation of the air-passages, has very brief stages of excitement and rigidity, and but a short stage of insensibility, with prompt awakening and but little of the mental confusion and excitement consequent on the use of the other anæsthetics. It is not inflammable, acts quickly, and is a good local anæsthetic. Its actions in other respects correspond with those of Ether.

NITROUS ETHER is a mild diaphoretic, a diffusible stimulant, a carminative, and an efficient diuretic. On the blood it acts similarly to Amyl Nitrite, diminishing oxygenation, relaxing the peripheral vessels, accelerating the heart's action, and thus lowering arterial tension. Relaxing the renal and cutaneous vessels, it is diuretic and diaphoretic.

ACETIC ETHER has a pleasant odor and taste, forming agreeable combinations with other carminatives as a stimulant and antispasmodic.

THERAPEUTICS.

When diluted with alcohol Ether mixes readily with water, and may be administered internally with advantage in indigestion of fats, and to aid the digestion of Cod-liver Oil. It is also given in hysteria to relieve the paroxysm and flatulence, and in hepatic colic from calculi, Ether with Turpentine (Durande's solvent remedy), which acts only as an anodyne and antispasmodic, is considered by some as of great value.

Subcutaneously Ether is used in the algid stage of cholera, sudden cardiac depression, neuralgia, and in the adynamia of hemorrhage, pneumonia and the eruptive fevers.

Local anæsthesia by the Ether-spray affords great relief in neuralgia of superficial nerves, lumbago, chorea, and spinal irritation. In minor surgical operations it is a valuable method.

As an Anæsthetic the vapor of Ether is less prompt than that of Chloroform, but is equally efficient and much safer. It should be inhaled in as concentrated a form as possible, and will then produce insensibility in from 5 to 10 minutes. If a light be in the room it should be high above the patient. A grate-fire or gas-stove in the vicinity is very dangerous. [Compare Chloroform.] Besides its surgical uses ether-anæsthesia is employed in neuralgia, cancer, tetanus, chorea, colic, delirium, puerperal mania and convulsions, infantile convulsions, hystero-epilepsy, epileptic seizures, laryngismus stridulus, whooping-cough, and asthma. The unpleasant after-effects may be greatly modified if not entirely prevented by the previous administration of Morphine (gr. $\frac{1}{6}$–$\frac{1}{4}$) and Atropine (gr. $\frac{1}{120}$) subcutaneously.

Hydrobromic Ether had a short period of popularity as an anæsthetic, but fell into disrepute after a few cases of death under its influence, which were probably not due to the agent used (Levis' and Sims' cases). Its action is less prolonged than that of Ether, but it has many advantages, requiring only ʒj to ʒij, rapidly given, and being uninflammable. Its inhalation has been of especial value in hysteria, epilepsy, chorea and other spasmodic disorders; and it has been employed subcutaneously in place of Ether in the treatment of such spasmodic affections as whooping-cough, chorea, etc.

The Compound Spirit of Ether (Hoffmann's Anodyne) is an admirable agent in gastralgia, colic, flatulence, syncope, etc., also in the various manifestations of the hysterical paroxysm. In combination with the camphorated tincture of Opium it is often remarkably efficient in checking the diarrhœa of hot weather.

Spirit of Nitrous Ether is used as a diaphoretic, a diuretic and a carminative; also in expectorant mixtures, as an antipyretic in febrile affections, and to relieve pain in angina pectoris, dysmenorrhœa and asthma. When its diuretic effect is desired it should be administered in iced water, and the patient should be lightly covered: but when its diaphoretic action is required, it should be preceded by a hot drink, and the patient should be well covered.

Hydriodic Ether may be obtained in glass capsules containing five minims each, and is used by inhalation in chronic pulmonary disorders, cardiac dyspnœa, spasmodic affections of the bronchi and larynx, asthma, and in catarrhal laryngitis with dyspnœa. It is not employed as an anæsthetic.

AGARICUS ALBUS, White or Purging Agaric (Unofficial),—is the fungus *Polyporus officinalis*, which grows on the European larch. It occurs in large, white, spongy pieces; and contains *Agaricic* or *Laricic Acid*, also from 40 to 70 per cent. of resins. The term *Agaricin* was formerly applied to the impure Agaricic Acid containing about 3 per cent. of *Agaricol*, which is physiologically inert.

The taste of Purging Agaric is first sweetish, then becoming very acrid and bitter. The powder inhaled causes violent sneezing, and taken internally in full doses it produces watery stools. Small doses check diarrhœa and dysentery, and diminish the secretions of the bronchi and mammæ.

Agaricus Albus was formerly employed as a drastic purgative, in doses of gr. xxx to ʒj. It has lately been used, with much success, in 15-grain doses of the powder, or 3 grains of the alcoholic extract, to check the night-sweats of phthisis. Agaricic Acid has proved very valuable in checking persistent sweating from any cause, especially that occurring after influenza. The dose is gr. $\frac{1}{12}$ to $\frac{1}{3}$: and it should not be given hypodermically.

AGARICUS CHIRURGORUM, **Surgeon's Agaric** (Unofficial),—is the interior portion of the fungus *Polyporus fomentarius*, which grows on the trunks of beeches, birches, and oaks in Europe. It is prepared for use by boiling in weak lye and beating with mallets, and then occurs in light, thin, yellowish-brown pieces, soft and pliable, without odor or taste. It is almost pure cellulose. It was formerly used as a mechanical hemostatic, and for the purpose of moxa. When soaked in a strong solution of Potassium Nitrate or Potassium Chlorate and dried, it is very inflammable, and is then called *Spunk*.

AGARICUS MUSCARIUS, **Amanita Muscaria**, *Fly-Agaric* (Unofficial),—is a poisonous mushroom, of disagreeable odor and burning, acrid taste, used in infusion with milk for poisoning flies, and by the Tartars as an intoxicant. It contains an actively toxic alkaloid, *Muscarine*, $C_5H_{13}NO_2$, of syrupy consistence, odorless and tasteless, soluble in water and alcohol, and readily dissolved out by water and dilute acetic acid, so that a doubtful mushroom may be easily rendered innocuous. It may also be produced synthetically, but it is doubtful whether the article so prepared is as active as the natural product. It has been made from Choline by Schmiedeberg.

Preparations.

Muscarina, *Muscarine* (Unofficial).—Dose, gr. $\frac{1}{8}$–gr. ij. It may be used hypodermically in watery solution.

Muscarinæ Nitras, *Nitrate of Muscarine* (Unofficial),—may be used hypodermically, in doses of from gr. $\frac{1}{10}$ to gr. $\frac{3}{4}$.

PHYSIOLOGICAL ACTION.

Muscarine is a powerful respiratory and cardiac depressant, paralyzing the respiratory centre and arresting the heart in diastole by paralyzing its motor ganglia while stimulating its inhibitory apparatus. It lowers the arterial tension, produces profound salivation, lachrymation and sweating, contracts the pulmonary vessels, causing intense dyspnœa, and increases the intestinal, hepatic and pancreatic secretions, but markedly diminishes the renal. It disturbs the gastro-intestinal tract, causing tetanic intestinal contractions, severe colic, vomiting and purging. It produces spasm of the accommodation, marked myosis and contraction of the pupil when given internally, but dilates the pupil widely when locally applied. [Gelsemium does so also.] Under its action the body temperature is decidedly reduced, and the excretion of waste-products is lessened. It is eliminated unchanged by the kidneys.

Agaricus acts as an intoxicant to the cerebrum, producing more vertigo and delirium than Alcohol, followed by profound sopor with lowered reflexes, perhaps coma and death.

Antagonists.

Atropine exactly opposes Muscarine, and *vice versâ*; no example of physiological antagonism being so complete in all particulars. When a frog's heart is arrested by the topical action of a minute quantity of Muscarine, the application of a little Atropine will immediately paralyze the inhibition and restore the pulsations. An equally prompt antagonism runs through their entire spheres of action. *Digitalin* is to some extent antagonistic; so also is *Eserine*.

THERAPEUTICS.

Muscarine has been as yet little used in medicine, but it will probably prove to be a valuable drug. It has been long used, with marked benefit, in the night-sweats of phthisis. A tincture of Agaricus has been found beneficial in ataxic typhus, chorea, and chilblains. Muscarine promises to be of great value in inflammations characterized by copious exudation, especially eye-inflammations, catarrhal jaundice, recent hemorrhoids, acute bronchitis, pulmonary hemorrhage, incipient pulmonary congestion, diabetes of both forms, and in constipation due to intestinal torpor and deficient secretion, accompanied by a torpid liver and difficult digestion of fats. In the latter affection it should be given in small doses, gr. $\frac{1}{80}$, thrice daily.

AILANTHUS, Tree of Heaven (Unofficial),—is the bark of *Ailanthus glandulosa*, a well-known shade tree, of the nat. ord. Simarubaceæ, indigenous to China, but cultivated elsewhere. It contains an oleo-resin and a volatile oil, on which its properties probably depend. Dose, gr. x–ʒj.

Preparations.

Extractum Ailanthus Fluidum, *Fluid Extract of Ailanthus* (Unofficial),—Dose, ♏x–ʒj.

Tinctura Ailanthus, *Tincture of Ailanthus* (Unofficial),—Dose, ♏x–ʒij.

Ailanthus is a decided nauseant, and a drastic purgative, causing also vertigo, weakness, cold sweats, dull headache, pains in the back, numbness and tingling in the limbs. It paralyzes the cerebrum and spinal cord of animals, impairment of motility beginning in their hind extremities. The cardiac action, at first increased, soon slows, the pulse becoming small and weak, and the respiration depressed, death occurring from paralysis of respiration. It is a good tæniafuge.

Ailanthus is used against tapeworm, a decoction of the fresh bark (ʒj to ℥iv), or the oleo-resin in drachm doses, being very efficient. It has also been well employed in malignant scarlatina, with dark and partial eruption, insensibility, delirium and other cerebral symptoms.

ALCOHOL, Alcohol, *Ethyl Alcohol, Ethyl Hydrate,* C_2H_5OH. The official alcohol is *Ethyl Alcohol*, which is represented in the pharmacopœia by the several preparations named Brandy, Whiskey, and Wine, as also under the following four forms, viz.—

Alcohol Absolutum, *Absolute Alcohol,* C_2H_5OH,—is *Ethyl Alcohol,* containing not more than 1 per cent. by weight of Water. A transparent, inflammable, colorless, mobile and volatile liquid, very hygroscopic, of characteristic, agreeable odor, and burning taste. Sp. gr. not higher than 0.797 at 59° F., or 0.789 at 77° F. Used to manufacture Chloroform.

Alcohol,—a liquid composed of about 91 per cent. by weight, or 94 per cent. by volume, of *Ethyl Alcohol*, C_2H_5OH, and about 9 per cent. by weight, of Water. A transparent, inflammable, colorless, mobile and volatile liquid, of agreeable odor and burning taste. Sp. gr. 0.820 at 59° F., or 0.812 at 77° F. Miscible with water in all proportions and without any trace of cloudiness; also miscible with ether or chloroform. Obtained by the distillation of fermented saccharine fluids. Used in preparing all the tinctures and spirits, also in some of the liniments, liquors and mixtures.

Alcohol Deodoratum, *Deodorized Alcohol*,—a liquid composed of about 92½ per cent., by weight, or 95.1 per cent. by volume, of *Ethyl Alcohol*, and about 7½ per cent., by weight, of Water. Sp. gr. about 0.816 at 59° F.

Alcohol Dilutum, *Diluted Alcohol*,—a liquid composed of about 41 per cent., by weight, or about 48.6 per cent., by volume, of absolute *Ethyl Alcohol*, and about 59 per cent. of Water. It is prepared by mixing together equal volumes of Alcohol and Distilled Water, or 410 parts by weight of the former and 500 of the latter. Sp. gr. about 0.936 at 59° F.

An Alcohol is a volatile organic compound, which contains no N, has a great affinity for water, and reacts with acids, forming therewith H_2O and ethers. Alcohols are therefore analogous to the metallic hydrates, as are Ethers to salts. Methyl Alcohol is obtained by the destructive distillation of wood, Phenyl Alcohol (Phenol) by that of coal-tar, and the fermented Alcohols (Ethyl, Amyl, etc.) from any vegetable substance containing sugar, (or starch and the ferment Diastase, which converts the starch into sugar), by fermentation through the agency of the yeast-plant, which splits the sugar into Alcohol and CO_2. The product contains much water, and is then distilled in order to separate the alcohol, which passes over first, with a certain amount of water, the greater part of the latter being left behind. In this country Alcohol is so produced from grain (chiefly barley), and is termed "High Wine," being disposed of by the distillers to certain wholesale liquor dealers, many of whom proceed to "rectify" it by mixing and blending it with water, essential oils of corn, rye, etc., ethers, burnt sugar, and occasionally small quantities of genuine whiskey, brandy, etc. The product is then labeled "Old Tom Gin," "Old Crow Whiskey," etc., according to the requirements of the retail dealers. True *Whiskey* is distilled from the mash of fermented grain (corn, wheat, and rye, or a mixture of all three), and should be not less than two years old, to be official; *Brandy* from the fermented juice of fresh grapes, and should be not less than four years old. *Wines* are the product of the fermented juice of grapes, without distillation.

Alcohol may be produced synthetically by shaking Olefiant Gas (C_2H_4) with strong Sulphuric Acid, then diluting and distilling. Absolute Ethyl Alcohol, which is only used for chemical testing and for the manufacture of Chloroform, is obtained by shaking Rectified Spirit (Alcohol) with Potassium Carbonate, decanting and distilling with slaked lime.

Alcohol very slowly oxidized forms *Aldehyde* (C_2H_4O); if less slowly *Acetic Acid* ($C_2H_4O_2$); if quickly, as in burning, CO_2 and H_2O, which are in all cases the ultimate products of its continued oxidation.

Principal Unofficial Alcohols.

Methyl Alcohol, *Methyl Hydrate*, CH_3OH, Wood-spirit,—also called Carbinol, Methol, Hydroxymethane. A non-fermented alcohol, obtained from the destructive distillation of wood. Ordinarily it contains many impurities, which give it a very disagreeable odor, and mixed with ethyl alcohol it renders the latter so disagreeable as to be unfit for drinking. Such a mixture is sold, under the name *Methylated Spirit,* for use as a solvent in the arts, as a combustible in lamps, etc.

Amyl Alcohol, *Amyl Hydrate,* $C_5H_{11}OH$, Potato-spirit, Fusel Oil.—A fermented alcohol obtained from the potato, also occurring in the crude spirit produced by the fermentation of saccharine solutions with yeast, and separated by the excessive distillation thereof, passing over after the ethyl alcohol. Is oxidized into Valerianic Acid. From it is prepared *Amyl Nitrite,* by distilling with nitric and sulphuric acids and copper wire. It is an oily liquid, of penetrating and oppressive odor and burning taste: sparingly soluble in water, but soluble in all proportions in alcohol, ether and essential oils.

Preparations.

Spiritus Frumenti, *Whiskey,*—obtained from the distillation of the mash of fermented grain; rye, wheat or corn (U. S.), barley (Scotch), and at least two years old. Sp. gr. 0.917 to 0.930. Has an alcoholic strength of 44 to 50 per cent. by weight; also Ethers developed by the action of acetic and butyric acids on the alcohol, and traces of Amyl Alcohol (fusel-oil) even in the best.

Spiritus Vini Gallici, *Brandy,*—obtained from the distillation of the fermented juice of grapes, and at least four years old. Sp. gr. 0.925 to 0.941. Has an alcoholic strength of 39 to 47 per cent. by weight, and Œnanthic and other Ethers developed by age. Pale Brandy is colored by the cask, the dark has caramel to color it. Is often prepared artificially by adding to high wines Acetic or Nitric Ether, Caramel, and Logwood or Catechu for astringency.

Vinum Album, *White Wine,*—should contain from 10 to 14 per cent. by weight of absolute alcohol, and is made by fermenting the unmodified juice of the grape, freed from seeds, stems and skins. California Riesling, Ohio Catawba, etc.

Vinum Rubrum, *Red Wine,*—should contain from 10 to 14 per cent. by weight of absolute alcohol, and is made by fermenting the juice of colored grapes in presence of their skins. Native Claret, Burgundy, etc.

Unofficial Alcoholic Preparations.

Rectified Spirit, sp. gr. 0.835,—has 85 per cent. by weight of absolute alcohol, and no fusel oil. Is often spoken of as "56 over proof," meaning that to reduce 100 volumes of it to the strength of proof spirit, requires 56 volumes of water.

Proof Spirit, sp. gr. 0.920,—contains 49 per cent. by weight of absolute alcohol, with a peculiar oil and other foreign matters.

Rum,—is obtained from the distillation of fermented molasses, and has about 42 per cent. by weight of alcohol.

Gin,—has about the same alcoholic strength as rum, and approaches very nearly to the official Spiritus Juniperi Compositus. It is usually distilled from rye or barley, and flavored, in Holland, with juniper berries and hops, in England, often with oil of turpentine, various cheap aromatics, acetate of lead, sulphate of zinc, cayenne pepper, etc. Pure gin is slightly diuretic, from the oil of juniper contained in it.

Spiritus Odoratus, *Perfumed Spirit, Cologne-water,*—prepared by adding to 800 parts of Alcohol, Water 158, Acetic Ether 2, Oil of Bergamot 16, Oil of Lemon 8, Oil of Rosemary 8, Oil of Lavender Flowers 4, and Oil of Orange Flowers 4 parts. A perfume or ingredient of lotions.

Vinum Aromaticum, *Aromatic Wine,*—consists of Stronger White Wine 94 per cent., with Lavender, Origanum, Peppermint, Rosemary, Sage and Wormwood, of each 1 per cent. Was official in the U. S. P. 1880.

Vinum Portense, *Port Wine,*—is not a natural wine, spirit being added during the process of manufacture, and the alcoholic strength raised to 30 or 40 per cent.

Vinum Xericum, *Sherry Wine,*—a dry, spirituous white wine, generally made to order by the dealers, and having from 20 to 35 per cent. of alcohol.

Sparkling Wines, as Champagne, Hock, Catawba,—are more or less sweet, and charged with carbonic acid, being bottled before fermentation is completed and the grape sugar all converted into alcohol. They contain 8 to 10 per cent. of absolute alcohol.

Sweet Wines, as Burgundy, Tokay, Muscatel, Malaga, Angelica, Madeira, etc.,—are of low alcoholic strength, 6 to 7 per cent. unless fortified.

Light Red Wines, as Claret, Red Rhine, Concord,—have 5 to 7 per cent. alcohol, tannic acid, grape coloring matter, etc.

Dry Acid Wines, as Rhine and Moselle wines, California Hock, Ohio, and Kelley-Island Catawba,—in these fermentation is complete, and the alcoholic strength from 5 to 7 per cent.

Beer, Ale and Porter,—are fermented liquors, made from malted grain, with hops and other bitters added. Beer is made by slow fermentation, the yeast sinking; Ale by rapid fermentation, the yeast floating. Their alcoholic strength is from 2 to 3 per cent. in beer, to 4 to 6 per cent. in ale and porter,—and they also contain malt extract, carbonic acid, lactic acid, various aromatics, potassium and sodium salts, etc.

Kumyss,—is obtained by the fermentation of milk, that of the mare being used in Tartary, where it is largely employed as a food. It contains from 1 to 3 per cent. of alcohol, sugar, lactic acid, casein, fat, salts, carbonic acid and ethers. (See under its own title.)

Physiological Action of Alcohols.

The Alcohols of the series to which the above-mentioned belong are all narcotic poisons when taken in sufficiently large doses; and have the general effect of paralyzing the nerve-centres in the inverse order of their development. Their symptoms may be divided into stages, viz.—(1) Stimulant, (2) Narcotic and Anodyne, (3) Anæsthetic, (4) Paralytic; therein closely following the action of the volatile anæsthetics derived from them, though wanting in the profound degree of anæsthesia which the latter produce. Ethyl Alcohol, the effects of which are detailed below, has the most typical action, and in poisoning by it all the stages follow each other in regular order. In poisoning by Methyl Alcohol the excitement is greater, the subsequent stages succeed each other more rapidly, and if the dose be insufficient to cause death, the effects pass off more quickly. They all lower the body-temperature.

The post-mortem appearances, after acute poisoning by the alcohols, show changes in the blood, stomach, intestines, liver, lungs and kidneys; some of which are probably due to the asphyxiation resulting from the paralysis of respiration. The Blood is dark and clotted in the heart. The Stomach and Intestines are congested and softened, especially so if the ingested alcohol has been undiluted. The Liver is very much congested, soft and friable. The Spleen is gorged with blood and softened. The Lungs are congested and show small extravasations of blood, and in the Kidneys hemorrhages are also found.

Physiological Action of Ethyl Alcohol.

Externally applied, Alcohol is a powerful antiseptic and disinfectant, also refrigerant, astringent, anhidrotic, rubefacient, and slightly anæsthetic. Applied to the exposed skin it quickly evaporates, cooling the surface, temporarily contracting the superficial vessels, and checking the secretion of the sweat-glands. If its evaporation is prevented, as by covering with a watch-glass or a piece of rubber, or if the alcohol is rubbed in, it absorbs water from the tissue and hardens it. It also coagulates the albumen of the part, but the coagulum is soon redissolved by the fluids of the tissues. It then dilates the vessels of the derma, producing a sensation of warmth and a rubefacient effect upon the skin.

Upon the mucous membrane of the mouth and pharynx similar effects are produced by the same application. If the alcohol is concentrated, a burning sensation is felt immediately; also an increased flow of saliva and quickened pulse, due to reflex action. Then follows a slight local anæsthesia of the part, and if the alcohol be held there for some time, the mucous membrane becomes whitish and opaque, from coagulation of the albumen, abstraction of water from the tissue and congestion of its vessels. This soon disappears, as resolution of the albumen occurs.

Internally, in moderate quantity and single dose, Alcohol acts briefly as a cerebral, cardiac and general stimulant; in large doses as an intoxicant and deliriant, and finally as a narcotic poison and paralyzant of the nerve-centres. It is somewhat antipyretic, also diuretic and antispasmodic, and is hypnotic in many cases.

A single dose of a strong alcoholic preparation, for example an ounce of neat brandy, introduced into the stomach, immediately produces important and valuable reflex effects. The cardiac rate is quickened, and its force is increased; the vessels of the entire body are dilated, especially those of the skin; the blood-pressure is raised, and a sense of glowing heat is produced. These reflex effects are well seen in the prompt restoration of a fainting person by the administration of a single dram of whiskey or brandy. By the same measure the nausea, paleness and other unpleasant symptoms produced by tobacco may be instantly counteracted.

Internally, in small quantity diluted, Alcohol dilates the gastric vessels, reddening the mucous membrane of the stomach, produces a sense of warmth and comfort, stimulates the gastric glands to increased production of gastric juice, and increases the activity of the gastric movements. Taken moderately, immediately before or during meals, it thus promotes the appetite and assists digestion; lessens the elimination of waste-products (urea and CO_2), causes a subjective sensation of heat, and slightly raises the body temperature. It briefly stimulates the heart, prolonging its systole and reducing the length of the diastole, and increases the functional activity of all the organs. The effects of large doses are very injurious; the pepsin of the gastric juice is precipitated thereby, the gastric and hepatic vessels are congested, the walls of the stomach are inflamed, and the gastric glands and hepatic cells are over-stimulated to the production of pathological secretions. If the ingestion is continued, even in moderate quantities frequently repeated, chronic gastritis ensues, gastric mucus is poured out in large amount, the gastric glands soon atrophy, and the permanent dyspepsia of drunkards is set up, with morning vomiting of glairy mucus. The further effects of large doses are the total arrest of digestion, the production of intoxication, perhaps hallucinations and delirium, also great incoördination of thought and motion, depressed sensibility, depression of the heart and respiration, lowered arterial tension and body-temperature, abolished reflexes, stupor, and, if the dose be sufficient, coma and death.

Upon the *Blood* Alcohol acts to first increase and then diminish the amœboid movements of the white corpuscles, and so affects the red corpuscles as to prevent the oxyhæmoglobin from readily parting with its oxygen. It consequently diminishes the oxidation of the tissues, and may lead to imperfect combustion of fat, which then accumulates. The result is obesity in many persons who habitually consume large quantities of alcoholic beverages, especially if these contain much saccharine material.

Upon the *Heart and Circulation* the first effects of Alcohol are those of slight and brief stimulation by reflex action. After its absorption the same effects are exhibited in a more marked degree. The pulse becomes fuller, the action of the heart is quickened and its force increased, due to stimulation of its accelerator nerves. The vaso-motor system is inhibited, causing the dilatation of all the vessels of the body, especially those of the periphery, and producing a sense of increased body-heat. The blood-pressure is raised, the great increase of cardiac action overcoming the results of the vascular dilatation. The mental and bodily functions are all stimulated for a time, the person feels better for the dram, his muscular power seems to be increased, more urine is passed, and perspiration is freer. But these effects are very transitory, and after a brief period of stimulation reaction sets in, and the entire organism is depressed to a lower point than where it was before the ingestion of the alcoholic stimulant. Large doses do not stimulate the heart at all, but immediately depress it, both by reflex action and by direct paralysis after their absorption. A toxic dose may paralyze the heart almost immediately by reflex action, but usually, after a very brief period of excitement, it produces insensibility, stertorous breathing, dilated or contracted pupils, complete muscular resolution, and death by paralysis of the heart and respiration. The action of alcohol upon the heart exemplifies two therapeutic laws: (1) That stimulation is necessarily followed by depression, and (2) that drugs which in moderate doses excite a function are very apt in large doses to paralyze it.

On the *Skin and Kidneys* Alcohol is mildly diaphoretic and diuretic, acting partly by its vascular dilatation, partly by stimulation of glandular activity. On the Intestines it has a slightly astringent effect at first, but in those who use it habitually to excess the bowels are always very loose, and the evacuations watery.

Upon the *Nervous System* Alcohol has specific and selective action. By a moderate dose this entire system is stimulated, chiefly as a result of increased blood supply due to the vascular dilatation and cardiac elevation. Reaction, however, soon occurs, and if the dose be very large, the period of exaltation quickly passes into one of profound cerebral depression, but this is usually preceded by marked incoördination of thought and of muscular movement, shown by incoherency of language, difficult speech, and staggering gait. The reflex activity of the spinal centres is abolished next, the urine and fæces are discharged involuntarily; the depression extends to the respiratory centre, breathing becomes difficult and the face cyanosed; profound coma supervenes, respiration and the heart are paralyzed, and the patient dies.

The reflex depression occurs early in the case, and accounts for the impunity with which a drunken man will often bear an injury which would cause death by shock to a sober one.

The action of Alcohol upon the nervous system illustrates well, in the order of its events, the physiological fact that stimulation is followed usually by depression; as well as the law that drugs which affect the functions progressively exhibit their earliest powers upon those functions which are highest in development (being those latest acquired by the individual and last to appear in the species), and influence next the next lower, until finally the lowest, namely those of respiration and circulation. The primary stimulation and subsequent depression of function proceeds therefore, in a descending scale from the highest or least firmly fixed and latest acquired function, to the lowest or most firmly fixed one. Thus, by Alcohol, the intellect is affected very early and the judgment abolished very soon, even though the imagination, the emotions and the power of speech remain stimulated. Soon these follow the same course, imagination is abolished, the patient loses command over his emotions, cries and laughs immoderately and without reason; next loses control over his organs of speech, talking incoherently and thickly, and then can only make a noise. At the same time other delicate and lately developed movements, as those required for writing, feeding, etc., are incoördinately performed and soon paralyzed. General muscular movements, being less highly and earlier developed, are next to become implicated, being first incoördinated, and soon abolished. The paralysis of reflex action follows, though lowered earlier in the case, then that of respiration and finally that of the heart.

The *Antipyretic action* of Alcohol is partly due to its power of lessening oxidation, but chiefly to the dilatation which even moderate doses produce in the vessels of the surface. This dilatation subjects the warm blood from the interior of the body to the cooling influence of the atmosphere, as also to that due to evaporation from the skin; and if kept up by repeated drams in a freezing temperature will soon so chill down the blood as to kill the subject.

Under ordinary conditions the contraction of the cutaneous vessels, in a person exposed to cold, prevents the warm blood from approaching the surface in any great quantity and becoming cooled; but this mechanism is temporarily paralyzed by every dose of alcohol, admitting the hot blood to circulate freely over the surface, and to be rapidly cooled down until the patient may be absolutely frozen to death as a result of repeatedly taking "something to keep him warm." This fact is well known to Arctic travelers and to the lumbermen of the northern forests, who have been taught by bitter experience to let alcohol severely alone when exposed to severe cold.

Delirium Tremens occurs after an alcoholic debauch, usually in cases where the stomach is so deranged as to prevent the ingestion or assimilation of food. So long as the toper can eat and digest his food he is practically not liable to this affection. It generally begins in from two to four days after the patient has lost his appetite and commenced to reject or vomit his food; and is marked by great restlessness, obstinate insomnia, a peculiar tremor of the tongue and limbs; also by delusions connected with the sense of sight, the patient imagining that he sees *animals* (dogs, rats, snakes, beetles, etc.) around him. The delirium is constant and active, may become violent and pass into mania, or the patient may die suddenly while in this state, without any warning symptoms. In several cases observed by the writer the delirium appeared four and five days after the last alcoholic dose was taken, though the patient was eating, sleeping, and working during the interval, apparently convalescent. Under treatment, and especially if sleep is brought on, the delirium usually subsides gradually, and the patient recovers.

Chronic Alcoholism is the result of the ingestion for a considerable length of time of an excessive quantity of alcohol, even though perhaps never sufficient to cause acute intoxication. One of the earliest symptoms usually observed is the vomiting of watery fluid or glairy mucus in the morning after rising. The bowels are generally loose, and the evacuations watery. The skin has a greasy look and a satiny feel; and the capillaries thereof on the face may become permanently dilated, giving to the cheeks a characteristic, dusky-red hue, and a flaming red color to the nose. In old drunkards, the latter organ often becomes covered on its tip with dusky-red tubercular enlargements, making it a very unsightly appendage. The stomach and liver are in a condition of chronic congestion, the food is not digested, and often to a great extent abandoned, the patient, in fact, living upon alcohol. Eructations of gas and flatulence are constant and distressing; the body is usually puffed and bloated, the eyes bleary, red and watery. [One of the most graphic descriptions of the drunkard's personal appearance is that by Trollope, in "Orley Farm," Chapter 57.]

After a time the connective tissue of the liver increases (hyperplasia), its parenchymatous structure atrophies or undergoes fatty degeneration, the organ contracts (cirrhosis), the portal circulation is impaired, the veins of the abdominal integument become prominent, and soon ascites ushers in the final stage. Cirrhosis of the kidneys may accompany that of the liver. The general impairment of function extends early to the nervous system, the mental powers are dulled, the temper becomes irritable, and tremor appears in the tongue, lips and hands. As a result of the prolonged use of alcohol very serious pathological changes take place throughout the organism. It exerts its essential and most injurious influence on the vital organs by its presence in the circulation, being thus brought into direct contact with the cellular tissues of the vital organs. It sets up hyperplasia of the connective tissue, resulting in sclerosis, especially in the stomach, brain, liver and kidneys; produces fatty degeneration (steatosis) of the blood, the arterial walls and the parenchyma of the various organs, depresses the brain, the heart and the arterial tension. Chronic disease of the heart, the arteries, and the mucous lining of the stomach and intestines, gout, diabetes, Bright's disease of the kidneys, paralysis, ataxia, peripheral neuritis, epilepsy, amaurosis, and insanity may result from the continued use and abuse of alcohol. The malt liquors (beer, ale, etc.) are less prone than the spirits to affect the brain, but are even more apt to set up fatty degeneration of the heart and liver. The heart is very liable to undergo gradual hypertrophy, partly by reason of the constant whipping up it receives from every dram of alcohol taken, and partly as a result of renal cirrhosis. Several of the largest hearts ever seen by the writer at autopsies, some of which were veritable instances of *cor bovinum*, occurred in subjects of chronic alcoholism associated with employment involving exposure and great anxiety, as in masters of steamships, superintendents of mines, etc.

Impurities in Alcohol increase greatly its toxic action; so that inferior brandy from a public liquor shop has a lethal action nearly one-half greater than that of pure ethyl alcohol. (Dujardin-Beaumetz.)

Alcoholic Coma may be easily confounded with that of apoplexy, opium narcosis, concussion of the brain, acute pneumonia, uræmia and epilepsy, the differential diagnosis being almost impossible to make with accuracy when the coma is deep. The pupils afford no trustworthy indication, as they may be either dilated or contracted in alcoholism. They are often unequally contracted in apoplexy, and in apoplexy of the pons varolii they may be equally and minutely contracted, as in opium-poisoning. The difficulty of diagnosis is increased by the common practice of giving a dram of whiskey or brandy as a reviver, so that a stranger found insensible on the street and brought to a hospital, may smell of alcohol without having been a subject of alcoholism. When no accurate history of the case can be obtained the diagnosis is so difficult as to be all but impossible in many cases.

Alcohol is rapidly diffused throughout the organism, which oxidizes a portion of it, about an ounce and a half for the adult in 24 hours, the oxidation yielding force, which is utilized as nervous, muscular, and glandular power. A larger quantity is probably poisonous, as it sets up structural changes in the various organs, and lowers the power of resistance to morbific influences. It renders its victims particularly liable to phthisis, and has frequently caused directly an intractable form of that disease, pulmonary sclerosis. It makes patients bad subjects for withstanding any severe illness, especially pneumonia, or to successfully undergo severe surgical operations.

The portion not oxidized is excreted unchanged by the lungs, the skin and the kidneys, but does not appear in any quantity in the urine unless very large amounts have been ingested. The very young and the very old bear more alcohol relatively than the adult. It has been proven to exist normally in the human organism, and within the limit above stated it is undoubtedly a food, as is shown by the fact of its retention and combustion in the body, supplying the place of other foods, so that the quantity of food which without it would be insufficient, with its aid becomes sufficient to maintain the body-weight.

Treatment of Acute Alcoholic Poisoning.

If a very large dose has been taken recently, the stomach should be evacuated of what is unabsorbed. Then *Ammonia* may be given by inhalation cautiously, warmth applied to the extremities, cold affusion to the head, faradism of the muscles of respiration. Milk, mucilaginous drinks, black coffee, are useful afterwards. *Lupulin* as a substitute stimulant, or *Capsicum* in 20 to 30 grain doses. *Chloral*, in 30 grain dose, repeated in two hours, to secure sleep, is very efficient, or 30 grs. each of Chloral and *Potassium Bromide*, for the same purpose. Chloral is said by teachers to be dangerous in old alcoholic cases, but the daily experience of physicians of inebriate asylums does not corroborate this statement. Nutritious, digestible diet in liquid form and small quantity frequently repeated, is an essential feature of the treatment. *Ammonium Chloride*, ʒss in ½ pint of water at one draught, is said to have a marvellous power in generally straightening up a drunken subject, restoring the faculties, and antagonizing stupor.

Treatment of Delirium Tremens.

Two principal objects are aimed at,—(1) to support the strength by nutritive diet, (2) to overcome the obstinate and exhausting insomnia and restlessness. For the latter purpose the mixture of *Chloral* and *Potassium Bromide* above mentioned is by far the most efficient agent, and the dose (gr. xxx of each) may be repeated every two hours until sleep is secured. *Digitalis* has been administered in large doses to quiet the delirium, and successfully in some cases, but this is a very dangerous treatment. (Brunton.) *Opium* or *Morphine* may be used in cases which show signs of exhaustion, but should be confined to such alone. Its general employment in this affection is decidedly injurious. *Bismuth*, with Magnesia and Hydrocyanic Acid, for the vomiting. Nutrient Enemata may be required, if the patient is unable to retain food. *No Alcohol* should be given.

Treatment of Chronic Alcoholism.

The continued ingestion of alcohol in excessive quantities is not a disease, as sentimentalists would have us believe, but is simply a vicious drug-habit, and may be overcome, like any other drug-habit, by the exercise of the subject's will-power alone in abstaining therefrom. The effort to gradually reduce the amount consumed simply prolongs the agony and is much less efficient than the total and immediate withdrawal thereof entirely. This should be carried out in an inebriate asylum in most cases. *Strychnine* is a specific remedy for alcoholism, and the basis of all the so-called "cures" which are extensively advertised under the gold-extracting title of "Chloride of Gold Cures." Ten to twelve minims of a solution of Strychnine Nitrate, gr. iij in ʒx of distilled water, should be injected hypodermically 3 or 4 times a day for two weeks, and less often for two weeks more, gradually reducing the dose and frequency of administration.

THERAPEUTICS OF ALCOHOL.

The external and local use of alcohol in medicine includes many applications of its antiseptic, astringent, refrigerant and rubefacient qualities. Diluted, in the proportion of four parts to one of water, it makes an excellent lotion for bruises, sprains, and other slight injuries, where it is desired to cool the part and check impending inflammation. A perfumed spirit, as Cologne Water, is commonly used as a lotion to the forehead for the relief of headaches. Alcohol does good service as an application to prevent bedsores and cracked nipples, as it hardens the inflamed skin by abstracting water therefrom and coagulating the albumen temporarily. Diluted alcohol is applied on the surface of the body in fevers, to cool the skin and check excessive sweating. Alcoholic liniments (Lin. Camphoræ, etc.,) are rubbed into the cutaneous tissue for their rubefacient effect, to aid the absorption of inflammatory products and to relieve pain, in chronic rheumatism, lumbago, myalgia, etc. As a gargle or spray, diluted alcohol is one of the very best local agents in tonsillitis, pharyngitis, and other inflammatory affections of the throat, especially diphtheria, in which disease it fulfils several important purposes, acting as an efficient local antiseptic, astringent and anæsthetic. Among miners, hunters, frontiermen and others, lotions of whiskey or brandy are in common use as applications to wounds and sores, and they could not find a more efficient agent for the purpose, when conjoined with thorough cleanliness of the lesions.

Internally, in small quantities taken just before or during a meal, alcohol is an efficient aid to digestion, especially in the aged and feeble, or persons who are greatly exhausted by overwork. In the atonic indigestion of nervous and depressed subjects and in cholera infantum, good brandy is universally found to be beneficial. Care must be taken, however, not to exceed the amount which agrees with the case, for large quantities precipitate pepsin, paralyze the gastric secretions, and set up a subacute gastritis, which will become a chronic one if the indulgence is persisted in, with eventual atrophy of the gastric glands.

In the form of a sparkling wine, as champagne, or as brandy and soda-water, alcohol may control vomiting from many causes, especially that of yellow fever and sea-sickness. A single full dose of strong whiskey or brandy is often a very efficient combatant of fainting or of collapse, by its prompt reflex stimulation of the circulation. Diarrhœa of simple form may be checked by a dram of good brandy, acting as a tonic astringent to the intestines. An attack of acute coryza, or a cold from exposure beginning with a chill, may frequently be aborted by a full dose of spirits in hot water taken just before going to bed, for the purpose of relaxing the peripheral vessels and thus promoting diaphoresis and restoring the disturbed balance of the circulation. In anæmia and chlorosis good red wines are almost indispensable, also in convalescence from acute diseases, sudden and profuse hemorrhages, and many other morbid conditions. In phthisis alcohol does good service if it promotes assimilation and assists digestion, shown by increase of the body-weight during its employment. It is invaluable in poisoning by cardiac depressants and snake-venom, and in cardiac failure from any cause.

In many fevers, Alcohol is often very serviceable, but may do harm if used therein without discrimination. Its powers of lessening oxidation, of being itself oxidized in the body and acting as a food, of reducing body-temperature and promoting perspiration and sleep, are all indications for its beneficial employment in most febrile conditions; while its stimulant action on the heart may be available in such diseases as typhoid fever, lobar pneumonia, etc., to tide that organ over a brief period of depression or a condition of impending collapse. Furthermore, for some unexplained reason, it often slows the pulse in fever, and when it does so its moderate use will be of general benefit to the patient. The danger is that if continuously given in such affections it may fail to make the required impression when an emergency calling for it occurs. The best rule to observe for its administration in typhoid, diphtheria, pneumonia and other fevers is to withhold it until the first sound of the heart becomes feeble and dull, and then to use it boldly but not excessively. Many authorities urge its continuous administration in diphtheria, probably from a belief in its antiseptic action on the poison in the blood, similar to that which it undoubtedly exercises against the venom of the rattlesnake. It is an absolute necessity in the treatment of acute lobar pneumonia, if the patient has been accustomed to its daily use as a beverage; but in other subjects of this disease it is best given at the crisis only, to tide the patient over a brief period of extreme danger.

The use of alcoholic beverages in moderate quantity by healthy persons is violently condemned by extreme total abstinence advocates, who make use of garbled quotations from medical authorities to support their arguments. Physicians generally agree with the position of Mr. Lawson Tait, who has recently declared that he is "fully persuaded after thirty years of life, as hard in work and as full of responsibility as well could be, that the moderate use of alcohol is a necessity in our modern life."

Dr. Robert Farquharson sums up the case for moderate drinking as follows: "All stimulant is unnecessary for the young and for people living perfectly healthy lives. But, under the stress and struggle of modern civilization, few of us beyond middle age are placed under normal physiological conditions, and a little alcohol helps us to round the corners, and to plane away the asperities of existence. In turns it may be a stimulant, or a sedative, or a tonic, or a digestive, or an actual food; and unless we run on into excess, no physical damage can possibly be done to our tissues. The argument in its favor, when wisely and prudently used, seems complete. It does us good, and can do us no harm."

ALLIUM, Garlic,—is the bulb of *Allium sativum*, a plant of the nat. ord. Liliaceæ, indigenous to Asia, but cultivated in Europe and America. It is sub-globular and compound, consisting of eight bulblets, covered by dry, membranous scales. Its odor is pungent and disagreeable and its taste warm and acrid. It contains a *Volatile Oil*, which consists mainly of the Sulphide of Allyl $(C_3H_5)_2S$, on which its qualities depend. Allied species are ALLIUM CEPA, the Onion, and ALLIUM PORRUM, the Leek.

Syrupus Allii, *Syrup of Garlic,*—contains 20 per cent. of Garlic, Sugar and Dilute Acetic Acid. Dose, ℥j–iv, according to age.

Garlic, Leeks and Onions are stimulant to the digestion and to the nervous system, and are supposed to have a special influence upon the bronchial secretion. Garlic is also thought to be emmenagogue and anthelmintic. It promotes diaphoresis and diuresis, and acts as a tonic and carminative. Many persons use it as a condiment. Large doses will often produce gastric irritation, flatulence, hemorrhoids, headache and fever. In domestic practice it is frequently employed as an external application in the cutaneous eruptions of children, and as a poultice or liniment in infantile disorders of many kinds. Internally it is of real benefit in feeble digestion and flatulence, chronic catarrhal affections of children, in nervous and spasmodic coughs, and in nervous vomiting.

ALNUS, Alder-Bark (Unofficial),—is the bark of *Alnus serrulata,* the common American Alder, a small tree of the nat. ord. Betulaceæ. It has similar properties to those of *A. glutinosa,* the European Alder, and *A. urcana,* the Tag Alder, and contains a tannic acid, an oil, and a resin. The bark and leaves are astringent and bitter, and are chiefly used as gargles for the throat, as local applications to wounds and ulcers, and to restrain the secretion of milk. Dose of the powdered bark gr. x, in decoction or infusion, several times a day. The Tag Alder is highly recommended as a hemostatic.

ALOE, Aloes,—is official in the two following named varieties, also as the Purified Aloes preparation, and the neutral principle, Aloin.

Aloe Barbadensis, *Barbadoes Aloes,*—is the inspissated juice of the leaves of *Aloe vera,* a plant of the nat. ord. Liliaceæ. Occurs in opaque, hard, orange-brown masses, of saffron-like odor and bitter taste.

Aloe Socotrina, *Socotrine Aloes,*—the inspissated juice of the leaves of *Aloe Perryi,* a plant of the nat. ord. Liliaceæ, inhabiting the island of Socotra and the eastern coast of Africa near the southern shore of the Red Sea, which has orange-colored flowers and resembles in appearance the American aloe or century-plant (*Agave americana*). It occurs in soft masses, hard exteriorly, of a yellowish-brown color, fragrant odor and bitter taste, soluble in alcohol and in boiling water, and containing a peculiar volatile oil, a resin and *Soaloin,* $C_{15}H_{16}O_7$, a variety of the principle *Aloin,* which is common to all varieties of aloes,—also *Aloetic* and *Chrysammic Acids.* Dose, gr. j–v.

Another variety is ALOE CAPENSIS, Cape or Natal Aloes, from *Aloe ferox.*

Aloinum, *Aloin,*—a neutral principle obtained from several varieties of Aloes, chiefly the above-named, which yield respectively Barbaloin, and Soaloin. These are soluble in 60 of water, 20 to 30 of alcohol, and in 380 to 470 of ether. Soaloin is soluble in 9 parts of acetic ether. Dose, gr. ss–ij.

Preparations.

Aloe Purificata, *Purified Aloes,*—prepared from Socotrine Aloes by melting and mixing with ⅕th of Alcohol, straining and evaporating. The product is in irregular, dull-brown, brittle pieces, almost entirely soluble in alcohol. From it are prepared the following preparations. Dose, gr. j–v.

Extractum Aloes, *Extract of Aloes,*—prepared by mixing 1 part of Socotrine Aloes with 10 parts of Boiling Distilled Water, standing 12 hours, decanting, straining and evaporating. Dose, gr. ss–v.

Tinctura Aloes, *Tincture of Aloes*,—has of Aloes 10, Glycyrrhiza, 20 Diluted Alcohol to 100 parts. Dose, ʒ ss–ij.

Tinctura Aloes et Myrrhæ, *Tincture of Aloes and Myrrh*,—Aloes 10, Myrrh 10, Glycyrrhiza 10, Alcohol and Water to 100 parts. Dose, ʒ ss–ij.

Pilulæ Aloes, *Pills of Aloes*,—each has of Aloes, gr. ij with the same quantity of Soap.

Pilulæ Aloes et Asafetidæ, *Pills of Aloes and Asafetida*,—each contains gr. 1⅓ of each ingredient.

Pilulæ Aloes et Ferri, *Pills of Aloes and Iron*,—each pill contains gr. j each of Aloes, Sulphate of Iron and Aromatic Powder, with Confection of Rose.

Pilulæ Aloes et Mastiches, *Pills of Aloes and Mastic, Lady Webster's Pill*,—each has of Aloes gr. ij, Mastic gr. ss, Red Rose gr. ss.

Pilulæ Aloes et Myrrhæ, *Pills of Aloes and Myrrh*,—each contains of Aloes gr. ij, Myrrh gr. j, Aromatic Powder gr. ss, mixed with Syrup.

Pulvis Aloes et Canellæ, *Powder of Aloes and Canella* (Unofficial),—contains the powdered bark of *Canella alba*. Dose, gr. v–xx.

Aloes is also a constituent of Pilulæ Rhei Compositæ and Tinctura Benzoini Composita —(which see, per INDEX).

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Aloes is a tonic-astringent and resin-bearing purgative, an emmenagogue and an anthelmintic against the thread-worm. As a cathartic it acts chiefly on the lower half of the large intestine, in doses of gr. j–iv producing in about 10 hours copious soft evacuations with some griping pain. This effect is produced whether the drug be taken internally or absorbed from an exposed surface, so that it probably diffuses into the blood and is eliminated by the mucous membrane of the colon. It is a stomachic tonic in small doses, a stimulant of the hepatic functions, and an excitant of the pelvic circulation. It may cause abortion in the female and priapism in the male, and is said to have frequently produced hemorrhoids, which if existing it will certainly aggravate. Given to nursing mothers it imparts a purgative quality to their milk.

Aloes is chiefly used in combination with Iron, Myrrh, Nux-vomica, etc., for amenorrhœa and chronic constipation with atonic dyspepsia and hypochondriasis. It is curative in certain forms of hemorrhoids, especially those occurring after delivery and where the condition is not one of active pelvic congestion. It is also used internally and as an injection in gonorrhœa, and for simple atonic jaundice. It must be avoided in irritable rectum, hemorrhoids of active form, menorrhagia and pregnancy, unless given in small doses and with care. The Pil. Aloes et Ferri is perhaps the most generally useful agent in the anæmia, amenorrhœa and constipation of girls at the period of puberty.

ALTHÆA, Marsh-Mallow,—is the root of *Althæa officinalis*, a European plant of the nat. ord. Malvaceæ, occurring in dry cylindrical pieces, of white color, without pith, of faintly aromatic odor and sweetish mucilaginous taste. It contains about 35 per cent. each of vegetable mucus and starch, with 2 per cent. of *Asparagin*, also pectous matter, sugar, fixed oil, but no tannin. It is a constituent of Massa Hydrargyri and Pilulæ Phosphori, and is much used as an excipient in extemporaneous pharmacy. Dose, indefinite.

Syrupus Althææ, *Syrup of Althæa*,—has of Althæa 5 per cent., and should be freshly made. Dose, indefinite.

Physiological Action and Therapeutics.

Althæa is one of the best mucilaginous drugs, but has no active medicinal properties. It is used in Europe to make pectoral teas and syrups, and is extensively employed as a mucilaginous demulcent. The powdered root makes a good emollient poultice. In the German Pharmacopœia a Compound Althæa Tea is official, which under the common name, "German Breast Tea," is a popular demulcent drink in bronchial affections, coughs, colds, etc.

Asparagin is an organic principle, occurring in large rhombic crystals, and found in many other plants, as in the shoots of asparagus, vetches, potatoes, liquorice, the sweet almond, the root of the locust, etc. It is considered a derivative of *Succinic Acid*, and has diuretic properties, besides being sedative to the circulation. It may be used in ascites, especially in children, in the anasarca of Bright's disease, and in gout. Dose, gr. ij–iij, in water.

ALUMEN, Alum, *Potassium Alum*,—is Aluminum and Potassium Sulphate, $Al_2K_2(SO_4)_4 + 24H_2O$, which, when the 24 molecules of water are driven off, becomes **Alumen Exsiccatum,** *Dried Alum*, $Al_2K_2(SO_4)_4$. Alum occurs in large, octahedral crystals, or cubes, of sweetish astringent taste and acid reaction. It is soluble in 9 parts of water at 59° F., and in 0.3 part of boiling water, but is insoluble in alcohol. The Ammonia-alum (Alumini et Ammonii Sulphas) was formerly official, and is still sold and dispensed as "Alum." Dose, gr. x–xx,—as an emetic ʒj for a child.

Preparation.

Alumen Exsiccatum, *Dried Alum*,—is a white, granular powder, slowly soluble in 20 parts of water at 59° F., and quickly soluble in 0.7 of boiling water. Dose, gr. x–xx.

Alum is an astringent, coagulating albumen and stimulating muscular contraction. At first it excites the flow of saliva and then markedly diminishes it. It coagulates pepsin and arrests digestion, stops peristalsis, and usually causes constipation, though sometimes inducing diarrhœa. Although coagulating albumen, even in weak solution, it enters the blood, constricts the capillaries, arrests secretions, especially those of mucous surfaces, and stops capillary hemorrhage.

In teaspoonful doses Alum is an efficient and non-depressant emetic. In large doses it is a gastro-intestinal irritant, ℥j⅝ of dried Alum having caused the death of an adult in 8 hours.

Alum is used locally as an astringent in chronic catarrhs, leucorrhœa, gonorrhœa, hemorrhoids, bed-sores, ulcers, relaxed throat, colliquative sweats, catarrhal ophthalmia and granular lids. The dried powder is escharotic, destroying granulations and warty growths, and is used by insufflation in chronic nasal catarrh.

Internally it is beneficial in gastric catarrh, gastralgia, enteralgia, passive hemorrhages, lead colic and constipation. As an emetic it is employed in croup, and it is a good antidote in lead-poisoning.

Alum is best administered alone, as it forms precipitates with a large number of drugs.

ALUMINUM.—This metal is not official, though of its salts two are, besides Alum. They are—

Alumini Hydras, *Aluminum Hydrate, Hydrated Alumina*, $Al_2(OH)_6$,—is a white, light, amorphous, tasteless powder, insoluble in water or alcohol, but soluble in strong alkaline or acid solutions. Dose, gr. iij–xx in powder or mixture.

Alumini Sulphas, *Aluminum Sulphate*, $Al_2(SO_4)_3 + 16H_2O$,—is a white crystalline powder, soluble in 1.2 of water at 59° F., almost insoluble in alcohol. Used locally.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The HYDRATE is a feebly astringent and desiccant powder, occasionally used in inflammatory skin affections as a local application, and internally in diarrhœa.

The SULPHATE is antiseptic and astringent. It has been used internally in diarrhœas, but is chiefly employed in a 5 per cent. solution locally to ulcers, or in stronger solution (ʒiij ad ℥vj) in foul discharges from mucous surfaces. A saturated solution is a mild caustic, and may be used daily as a local application to enlarged tonsils, nasal polypi, ulceration of the os uteri, and various chronic enlargements. The Benzoinated Solution of Alumina is an unofficial preparation used for the same purposes.

AMMONIACUM, **Ammoniac**,—is a gum-resin, obtained from *Dorema Ammoniacum*, a Persian plant of the nat. ord. Umbelliferæ, occurring in yellowish-brown tears of peculiar odor, and bitter, acrid and nauseous taste. When triturated with water it readily yields a milk-white emulsion, and contains a *Volatile Oil*, which differs from that of Asafœtida, in that it is neither sulphuretted nor phosphoretted. It also contains resin, gum, gluten, etc. Dose, gr. x–xxx.

Emulsum Ammoniaci, *Emulsion of Ammoniac*,—an emulsion with water of 4 per cent. strength, the resin being suspended by the contained gum. Dose, ℥ss–j.

Emplastrum Ammoniaci cum Hydrargyro, *Ammoniac Plaster with Mercury*.—Ammoniac 72, Mercury 18, Oleate of Mercury 8 per cent., and contains also Lead-plaster, and Dilute Acetic Acid.

Ammoniac is a stimulating expectorant and a laxative, and has a mildly irritant action on the skin. Its actions are similar to those of Asafœtida, but much less powerful. It is not much used, but may be employed with benefit in chronic bronchial affections, especially of the aged, the mixture with Ammonium Chloride or Carbonate facilitating expectoration and lessening wheezing. It is also recommended in asthma, and in glandular enlargements and indolent swellings the plaster is employed as a stimulating alterative and resolvent.

AMMONIUM, NH_4,—is a hypothetical compound radical, which does not exist in the free state, but which in combination with acids forms salts which closely resemble those of the elements Potassium and Sodium. Many of its salts are official, as well as the aqueous solutions of the gas AMMONIA, NH_3, which is produced during the putrefaction of all organisms, and of many organic nitrogenous compounds existing in the air and in the soil in the free state. The chief commercial source of Ammonium salts is the ammoniacal liquor from gas-works and bones.

Preparations of Ammonia.

Aqua Ammoniæ, *Ammonia Water*,—is an aqueous solution of Ammonia, containing 10 per cent. by weight of the gas. It is a colorless liquid of pungent odor, acrid taste and strongly alkaline reaction. Sp. gr. 0.960 at 59° F. Dose, ♏v–ʒss, well diluted.

Aqua Ammoniæ Fortior, *Stronger Ammonia Water*,—contains 28 per cent. by weight of the gas. Sp. gr. 0.901 at 59° F.

Spiritus Ammoniæ, *Spirit of Ammonia*,—is a 10 per cent. solution of the gas in alcohol. Sp. gr. about 0.810. Dose, ♏x–ʒj, diluted.

Spiritus Ammoniæ Aromaticus, *Aromatic Spirit of Ammonia,*—contains Ammonium Carbonate, Aqua Ammoniæ, Oils of Lemon, Lavender, and Nutmeg, Alcohol and Water. Used in the Tinct. Guaiaci Ammoniata and the Tinct. Valerianæ Ammoniata. Dose, ʒ ss–ij.

Linimentum Ammoniæ, *Ammonia Liniment,*—has of Aqua Ammoniæ 35 parts, Cotton-seed Oil 60, Alcohol 5 parts.

Ammonium Salts and their Preparations.

Liquor Ammonii Acetatis, *Solution of Ammonium Acetate, Spirit of Mindererus,*—is prepared by neutralizing Dilute Acetic Acid with Carbonate of Ammonium, and contains about 7 per cent. of the Acetate. It should be freshly made. Used in Liquor Ferri et Ammonii Acetatis. Dose, ʒ j–℥ j.

Ammonii Benzoas, *Ammonium Benzoate,* $NH_4C_7H_5O_2$,—in minute four-sided, laminar crystals, soluble in 5 of water and 28 of alcohol at 59° F. Dose, gr. v–xv.

Ammonii Bromidum, *Ammonium Bromide,* NH_4Br,—in prismatic crystals or as a granular salt, soluble in 1½ of water and 30 of alcohol at 59° F. Dose, gr. x–ʒ ss, well diluted.

Ammonii Carbonas, *Ammonium Carbonate,* $NH_4HCO_3.NH_4NH_2CO_2$,—occurs in white masses consisting of both the bicarbonate and carbonate, which on exposure to air becomes a white powder (acid carbonate). Soluble in 5 parts of water at 59° F. Dose, gr. v–x.

Ammonii Chloridum, *Ammonium Chloride, Sal-ammoniac,* HN_4Cl,—a white, crystalline powder, of saline taste, and slightly acid reaction; soluble in 3 of water and very sparingly in alcohol. Dose, gr. j–xx.

Trochisci Ammonii Chloridi, *Troches of Ammonium Chloride,*—each contains 1½ grains of the chloride.

Ammonii Iodidum, *Ammonium Iodide,* NH_4I,—a deliquescent, granular, white salt, soluble in 1 of water and 9 of alcohol at 59° F. Dose, gr. ij–x.

Ammonii Nitras, *Ammonium Nitrate,* NH_4NO_3,—in colorless crystals or fused masses, soluble in 0,5 of water and 20 of alcohol at 59° F. Only used to prepare Nitrous Oxide Gas by heating to 365° F., for anæsthesia.

Ammonii Valerianas, *Ammonium Valerianate,* $NH_4C_5H_9O_2$,—in white, quadrangular plates, deliquescent; very soluble in water and alcohol. Dose, gr. j–v.

Raspail's "Eau Sedative" (Unofficial),—consists of Aqua Ammoniæ ℥ ij, Sodii Chloridum ℥ ij, Spiritus Vini Camphorat. ℥ iij, Aqua ℥ xxxij. For local use.

PHYSIOLOGICAL ACTION.

The gas AMMONIA is intensely alkaline and irritant to mucous membranes; inhaled producing spasmodic cough and a sense of suffocation. Its prolonged inhalation will induce violent inflammation of the air-passages and œdema of the glottis. It stimulates the nasal branch of the fifth nerve, exciting the vaso-motor centre by reflex action, and thus raising the arterial tension. Applied to the skin and allowed to evaporate, it has a slight rubefacient effect, but if evaporation be prevented it penetrates the epidermis, and has a powerfully vesicant action. The Aqua, swallowed undiluted, may cause death quickly by suffocation from the action of its vapor upon the air-passages; if not, it may excite gastro-enteritis accompanied by coma, differing in the latter respect from potassium or sodium poisoning. After absorption it stimulates both the respiration and the circulation by direct action on their respective nerve-centres. Ammonia exists normally in the circulation, where it keeps the fibrin in solution and thus maintains the fluidity of the blood. It increases the glycogenic function of the liver, and is converted finally into urea. It is a powerful irritant to muscular tissue, causing tetanic contraction and subsequent rigor mortis when directly applied.

AMMONIUM SALTS all stimulate and finally paralyze the spinal cord, motor nerves and muscles, in animals, but the order and intensity of the action vary with the salts employed, some having a predominating influence on the cord, others on the motor nerves. In general they may be said to form a series, of which the members at one end stimulate the cord, and those at the other paralyze both the cord and the motor nerves. At the stimulant end are Ammonia and the Chloride; at the paralyzant end the Iodide; the Bromide, Phosphate and Sulphate lying between (Brunton). In medicinal doses they act on man as stimulating expectorants, in large quantity they injure the structure of the red blood-corpuscles, and if long continued they produce rapid emaciation by impairing digestion and increasing tissue-waste.

The CHLORIDE has decided cholagogue powers, increases the excretion of urea, in 20-grain doses is purgative, and is considered to have a selective action upon the gastric mucous membrane. The CARBONATE is a powerful and very diffusible stimulant; when administered internally in moderate doses it is probably decomposed by the HCl of the gastric juice, nascent ammonia being set free and absorbed. It stimulates the respiratory centre, acts as a stimulating expectorant, and in very small doses stimulates the secretion of the gastric juice. It is also emetic, and has been supposed to prevent iodism when administered conjointly with Iodide of Potassium. The SOLUTION OF THE ACETATE is an active diaphoretic if the body be warm, or a diuretic if it be cool. In wineglassful doses it will counteract many of the immediate effects of alcohol. The PHOSPHATE is diuretic, and is believed to decompose the insoluble Sodium Urate in the blood, converting it into the soluble salts Ammonium Urate and Sodium Phosphate, and thus promoting its elimination. The BENZOATE is also diuretic, and like Benzoic Acid passes out of the system in the urine as Hippuric Acid. It stimulates the liver, and acidifies the urine where there is phosphatic tendency thereof. The NITRATE and SULPHATE are only used for the preparation of other salts, while the IODIDE, BROMIDE and VALERIANATE correspond in action to that of their titular bases, and are described under their respective titles, IODUM, BROMUM and VALERIANA.

Antagonists to Ammonia.

When inhaled, give HCl vapors by inhalation to form the chloride; if taken in solution, give *Vegetable Acids*, and demulcents to protect the mucous surfaces. Its physiological antagonists are the cardiac sedatives, Aconite, Digitalis, Veratrum, etc.

THERAPEUTICS.

The strong solution of AMMONIA may be used as a rubefacient and vesicant, and its vapor, by cautious inhalation, in syncope and the results of shock. Locally, it is a good application to bites of the less venomous reptiles and to the stings of insects. The CARBONATE is used internally in the eruptive fevers, delirium tremens, continued fevers, pneumonia, etc., where much depression exists; as a stimulating expectorant in chronic bronchitis, in the broncho-pneumonia of children, and in cardiac asthma. It is highly recommended in scarlet fever in doses of 3 to 5 grains every one, two or three hours, all acid drinks or fruits being prohibited while it is being administered. With ten-minim doses of tincture of capsicum in an ounce of some bitter infusion it is exceedingly efficient, in 5–10-grain doses, for the sinking sensations and craving for stimulants experienced by subjects of alcoholism. It may be used as an emetic in bronchitis, when the tubes are choked with mucus and the circulation of the patient is weak. It may also be employed by inhalation, and administered internally, for similar purposes as Liquor Ammoniæ.

In dose of 5 grains, administered hypodermically in the vicinity of wounds caused by poisoned arrows, the Carbonate was repeatedly used by Dr. Parke, Stanley's surgeon in Africa, with entire success in saving life when so employed immediately after injury. Those so wounded at too great a distance to receive this treatment invariably died within a short period of time.

The CHLORIDE has high repute in catarrh of the stomach, with anorexia, bad taste in the mouth, flatulence, coated tongue, etc., in short, the symptoms of so-called "biliousness;" also, in chronic congestion of the liver, jaundice from catarrh of the bile-ducts, nervous and sick headaches, myalgia, amenorrhœa, muscular rheumatism and neuralgia. In the latter affection it should be given in 30-grain doses several times a day. It is also efficient in bronchial catarrh without fever, and in chronic bronchitis when the secretion is scanty and tough. It is remarkably efficient in straightening up a victim of acute alcoholism; administered to one on the verge of delirium tremens, in dose of ½ drachm in half a pint of water, swallowed at one draught, it is said to restore the patient's faculties so quickly as to astonish those who have never seen it so employed. Locally, in solution, it has been well employed in inflammatory swellings, as sprains, inflamed joints, orchitis, etc., as a lotion; also, to allay itching in prurigo, to remove ecchymoses and glandular enlargements. *Eau Sedative* is often a good local application in headaches.

The SOLUTION OF THE ACETATE is especially beneficial in the exanthemata, influenza, coryza, anomalous febrile conditions of children, acidity and vomiting; also, in erysipelas when there is feeble circulation, cyanosis and delirium. It is frequently combined with Spirit of Nitrous Ether, as a diuretic and diaphoretic in febrile affections. The PHOSPHATE is particularly applicable to gout and lithæmia, and is a very efficient cholagogue. The BENZOATE is useful in cystitis with alkaline urine and phosphatic deposits, as it acidulates the urine, at the same time stimulating and disinfecting the mucous coat of the bladder.

AQUA AMMONIÆ has been administered by intra-venous injection, with efficacy and safety, in sudden or threatened thrombosis, cardiac paralysis from Chloroform, and in poisoning by Hydrocyanic Acid and other cardiac depressants. In the same manner, it has been employed, but unsuccessfully, in poisoning by the bite of venomous reptiles. Ten drops of the strong Liquor are diluted with three parts of water, and carefully injected into a vein, all air being rigorously excluded from entrance thereinto.

The therapeutics of the IODIDE, BROMIDE and VALERIANATE are enumerated under the titles IODUM, BROMUM and VALERIANA respectively.

AMYGDALA, Almond.—The seeds of two varieties of *Prunus Amygdalus* (nat. ord. Rosaceæ), namely *Amygdala amara* and *Amygdala dulcis*, are official, together with several preparations, some prepared from one variety, some from another, while one is from either and one from both. An important point is the reaction between *Amygdalin* and *Emulsin* in the presence of water producing Hydrocyanic Acid (see *ante*, page 74). *Amygdalin*, $C_{20}H_{27}NO_{11}$, is a crystalline glucoside, existing in Amygdala amara but not in Amygdala dulcis; while the ferment *Emulsin* is common to both varieties.

Amygdala Amara, *Bitter Almond*,—is the seed of *Prunus Amygdalus*, var. *amara*, a tree of the nat. ord. Rosaceæ, indigenous to Western Asia, but cultivated in many other parts of the world. The seed is lanceolate in shape, brownish in color, about an inch long, having a white, oily embryo of bitter taste, which, when triturated with water, emits an odor of Hydrocyanic Acid. Cultivated chiefly in Spain and the Balearic Islands.

Amygdala Dulcis, *Sweet Almond*,—is the seed of *Prunus Amygdalus*, var. *dulcis*, a tree of the nat. ord. Rosaceæ. The bitter and sweet almond trees are identical botanically, and the fruits and seeds of the two varieties resemble each other closely, only differing in taste and the presence of Amygdalin (see above). The sweet almond is largely cultivated about Malaga and in California.

Preparations.

Aqua Amygdalæ Amaræ, *Bitter Almond Water*,—is a weak solution of the Oil of Bitter Almond in Distilled Water (1 to 1000). Is only a flavored water. Dose indefinite.

Oleum Amygdalæ Amaræ, *Oil of Bitter Almond*,—is a volatile oil, of peculiar and aromatic odor, bitter, burning taste, and neutral reaction; soluble in 300 of water, but freely in alcohol and ether. Dose ♏ ¼-j, in mixture.

This essential oil, one of the products of the reaction between Amygdalin and Emulsin (see *ante*, p. 74), contains a varying quantity of Hydrocyanic Acid (3 to 14 per cent.), which may be removed by distillation with caustic potash. *Nitrobenzol*, or "Oil of Mirbane," closely resembles the oil of bitter almond, and like it is used for flavoring. It contains no Hydrocyanic Acid, but is a dangerous poison, producing toxic effects when inhaled, even in small doses.

Spiritus Amygdalæ Amaræ, *Spirit of Bitter Almond, Essence of Bitter Almond*, —has of the Oil 1, dissolved in Alcohol 80, and Water added to 100 volumes. Dose, to be regulated by the quantity of alcohol desired.

Syrupus Amygdalæ, *Syrup of Almond*,—has of Bitter Almond 4 per cent., of Sweet Almond 14. Dose indefinite.

Emulsum Amygdalæ, *Emulsion of Almond*,—made of Sweet Almond 6 per cent., with Acacia, Sugar and Water. A demulcent drink, used as a vehicle for cough mixtures. Dose, ʒij–℥ss.

Oleum Amygdalæ Expressum, *Expressed Oil of Almond*,—is the fixed oil which is expressed from either Bitter or Sweet Almond. Used in Unguentum Aquæ Rosæ, and as a bland local application in skin affections.

Physiological Action and Therapeutics.

The bitter and sweet varieties of the species *Prunus Amygdalus* differ in action only through the agency of the principle Amygdalin contained in the former. The Sweet Almond is demulcent and nutritive, while the fixed oil expressed from either variety is a bland application, having the same action as Olive Oil. The action of the Bitter Almond and its oil is due to the Hydrocyanic Acid contained in them (see *ante*, p. 74).

The Expressed Oil of Almond is demulcent, and in doses of ʒj–ij a mild laxative. It is used externally for excoriations, chapped hands, and inflammatory skin affections, and is applied to the ear in earache. The cake remaining after the expression of the fixed oil from the sweet almond is ground into flour, and used in the form of biscuits for diabetics as a substitute for bread, as it contains no starch.

The Oil of Bitter Almond is used as a flavoring agent, and may be employed locally or internally in lieu of Hydrocyanic Acid. The Syrup is somewhat sedative, but is generally used as a demulcent or for flavoring purposes. The Emulsion is used in catarrhal affections and as a vehicle for cough-mixtures. The poisonous character of the Bitter Almond and its essential oil (Oleum Amygdalæ Amaræ) should be kept in mind.

AMYL NITRIS, Amyl Nitrite,—is a liquid containing about 80 per cent. of *Amyl Nitrite*, $C_5H_{11}NO_2$, together with variable quantities of undetermined compounds. It occurs as a clear, yellowish liquid, of ethereal and fruity odor, aromatic taste, and neutral or slightly acid reaction, extremely volatile, insoluble in water but freely soluble in alcohol, ether, chloroform and benzin. It is produced by the action of Nitric or Nitrous Acid upon Amylic Alcohol, and when impure may have Nitric or Hydrocyanic Acid in it. Dose internally ♏ ¼–j dissolved in alcohol,—by inhalation ♏ ij–v; but larger doses are probably safe.

Analogous Compounds.

Glonoinum, *Glonoin, Nitroglycerin, Trinitrin, Glyceryl Trinitrate*, $C_3H_5(NO_3)_3$,—is a clear, oily liquid, insoluble in water, but soluble in alcohol, ether, oils, etc., produced by the action of Nitric and Sulphuric acids upon Glycerin. It is a dangerous explosive, and should not be kept in stronger solution than 1 per cent. Dose, ♏ $\frac{1}{100}$ to $\frac{1}{50}$ or more, according to susceptibility. Official in the Spirit.

Spiritus Glonoini, *Spirit of Glonoin, Spirit of Nitroglycerin*,—is a 1 per cent. solution in alcohol. Dose, ♏ ½–x. The strong tincture sold by the homœopathic pharmaceutists and official in their American Pharmacopœia is a 10 per cent. solution, or ten times the strength of the above. It is an extremely dangerous preparation, both as an explosive and as a medicine. (See *American Homœopathic Pharmacopœia*, 2d ed., Boericke & Tafel, 1883, page 235.)

Tabellæ Nitroglycerini (B. P.), *Tablets of Nitroglycerin*,—are tablets of chocolate, each containing gr. $\frac{1}{100}$ of pure Nitroglycerin. Dose, j–ij.

Sodii Nitris, *Sodium Nitrite*, $NaNO_2$, and **Potassium Nitris**, *Potassium Nitrite*, (the latter unofficial),—are used as substitutes for Amyl Nitrite and Nitroglycerin. The former is a white, crystalline powder, deliquescent in the air, in which it gradually oxidizes to sodium nitrate; has a mild, saline taste, but no odor; very soluble in water, slightly in alcohol. Dose, gr. ss–v, according to individual susceptibility.

Ethyli Nitris, *Ethyl Nitrite*, $C_2H_5NO_2$,—constitutes about 5 per cent. of Spiritus Ætheris Nitrosi. (See page 87, *ante*.)

PHYSIOLOGICAL ACTION.

AMYL NITRITE and the other NITRITES agree closely in their general action, producing great vascular dilatation by paralyzing either the sympathetic system, the vaso-motor centre or the muscular coat of the arterioles,—which, is yet undecided. They cause tumultuous action of the heart by relaxing its inhibition;—lowered respiration, from paralysis of the respiratory muscles and impairment of the ozonizing function of the blood; —diminution of sensation, motility, and reflexes;—a sense of heat, but lowered body-temperature; also throbbing pain in the head, beating carotids, quickened pulse, flushed face and vertigo.

The effect of an ordinary inhalation of Amyl Nitrite on man is very transitory, excepting the headache, which may last several hours. Of all the nitrites it is the most prompt but least enduring in action, and is best administered by inhalation. It causes sugar to appear in the urine and increases the quantity of urine voided. Mixed with blood it forms methæmoglobin, which is not so readily deoxidized as hæmoglobin, and under its influence the blood in the body becomes of a dark chocolate color both in the arteries and in the veins.

NITROGLYCERIN acts similarly, but less promptly, and its action is more enduring. Its headache is of intensely frontal character, and persists for hours after the other effects have passed off. It is more suitable for internal administration.

SODIUM NITRITE is also slower in action than Amyl Nitrite, and does not cause so much throbbing headache as Nitroglycerin. It may be given in solution with water.

The action of all these agents is probably due to the Nitrous Acid contained in them.

Antagonists.

Ergot, Belladonna, Strychnine, Brucine, Digitalis, Picrotoxin, and all other agents which increase the functional activity of the spinal cord and sympathetic are antagonistic, though by reason of their slower rate of diffusion the antagonism may not be always available. Stimulants, artificial respiration, the alternate cold and hot douche, with cold to the head, and Ergotin or Atropine subcutaneously, are the best means to be used in cases of poisoning by the Nitrites.

THERAPEUTICS.

The inhalation of AMYL NITRITE is a useful palliative in angina pectoris, epilepsy, tetanus, and many of the respiratory neuroses, as spasmodic asthma, whooping-cough, laryngismus stridulus, etc. It is also indicated in migraine of the pale-face form, and in the cold stage of intermittents and pernicious remittents, to prevent internal congestion,—also in convulsions of various kinds, including the puerperal. It has been sometimes used in threatened death from chloroform anæsthesia, and in poisoning by strychnine.

NITROGLYCERIN is employed with benefit in neuralgic dysmenorrhœa, and sea-sickness; also in chronic interstitial nephritis, by redistributing to the kidneys their-blood-supply cut off by degeneration of the renal ganglionic centres. It promptly relieves hiccough, also migraine of spasmodic character, and has afforded immediate relief in neuralgia of the fifth and in sciatica. Its administration in angina pectoris, though not producing such prompt results as that of Amyl Nitrite, gives excellent and much more lasting effects. It is useful in the weak heart of the aged, or that from fatty degeneration, or when, as in Bright's disease, the arterial tension is above normal; also in irritable and overacting heart, which it relieves by lowering arterial tension.

SODIUM NITRITE has been successfully employed in angina pectoris, hemicrania, and in asthma of purely bronchial and neurotic origin. It has also proved decidedly beneficial in the abnormally high arterial tension of chronic desquamative nephritis, especially when complicated with a weakened and dilated heart.

AMYLUM, Starch, $C_6H_{10}O_5$,—is the fecula of the seed of *Zea Mays*, Maize or Indian Corn, a plant of the nat. ord. Graminaceæ. Though corn starch is the official kind, any other might be properly used, as the starch occurring in wheat, barley, oats, arrow-root, sago and tapioca, all of which foods were official in the U. S. P. of 1870. The last three are entirely composed of starch; wheat contains about 70 per cent., and rice 90 per cent.

Starch is a carbohydrate, and occurs in distinct grains, forming irregular angular masses, white, inodorous, and tasteless, easily pulverized, of neutral reaction, and insoluble in alcohol, ether or cold water. Under the microscope the granules are seen to be lenticular in form and concentrically striated. When boiled with water it yields a whitish jelly of bluish tinge, which when cool gives a deep blue color with test-solution of iodine, the color disappearing on warming and returning on cooling.

By boiling with dilute mineral acids Starch is converted into Glucose, Dextrin being formed as an intermediate product. Hot concentrated nitric acid converts it into Oxalic Acid, but cold fuming nitric acid dissolves it, forming an explosive compound. Diastase, ptyalin and pancreatin convert it into Glucose. [For Glycogen, Dextrin, Cellulose and other allied substances see the article SACCHARUM in the following pages.]

Glyceritum **Amyli**, *Glycerite of Starch*,—has of Starch 10 parts, Water 10, Glycerin 80, triturated and heated to a transparent jelly. Used as a vehicle for external applications.

Starch, though a nutritive of the first order, may be regarded as inert medicinally. It serves as a protective and absorbent if dusted over the skin, as a vehicle for enemata, and as an antidote in iodine-poisoning. Mixed with glue it makes an excellent stiff bandage for surgical purposes.

ANISUM, **Anise**,—is the fruit of *Pimpinella Anisum*, a European plant of the nat. ord. Umbelliferæ. It occurs in ovate bodies, 1/6 inch long, hairy, of grayish color, aromatic odor, and sweet, spicy taste, resembling conium fruit in appearance. Dose, gr. x–xx.

Preparations.

Oleum **Anisi**, *Oil of Anise*,—is a volatile oil distilled from *Anise*, and represents the medicinal qualities of the plant. It congeals at 50° to 59° F., is soluble in an equal part of alcohol, and is an ingredient of Tinctura Opii Camphorata, Trochisci Glycyrrhizæ et Opii, and of the two following preparations. Dose, ♏ j–v.

Aqua **Anisi**, *Anise Water*,—has in 500 parts 1 of Oil of Anise triturated with Calcium Phosphate, and mixed with distilled water. Dose, indefinite.

Spiritus **Anisi**, *Spirit of Anise*,—is a 10 per cent. solution of the oil in alcohol. Dose, ʒj–ij.

The Volatile Oil is the active constituent of Anise. It has a slightly stimulant action on the heart and the digestive organs, and liquefies the bronchial secretion, being probably in part excreted by the bronchial mucous membrane. It is a favorite flavoring ingredient of cough-mixtures, and relieves slight intestinal colic and flatulence in children. In full doses it has weak narcotic power.

ANTHEMIS, **Chamomile**,—the flower heads of *Anthemis nobilis*, a European perennial of the nat. ord. Compositæ, collected from cultivated plants. Chamomile-flowers are sub-globular, about 3/4 inch broad, having numerous white, three-toothed florets on a conical, solid receptacle, a strong but agreeable odor, and an aromatic, bitter taste; and contain a volatile oil, a camphor and a bitter principle, but no alkaloid. There are no official preparations. An infusion (ʒiv to Oj) may be given in doses of ℥j–ij.

Oleum **Anthemidis**, *Chamomile Oil* (Unofficial),—the volatile oil, is of a dark blue or green color, and is composed of various ethers, the Angelates and Valerianates of Butyl predominating. Dose, ♏ ij–x, on sugar.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Chamomile is a stomachic tonic. It improves the appetite and aids digestion by increasing the vascularity of the gastric mucous membrane. In large doses the warm infusion is emetic, and perhaps diaphoretic, though the latter action is chiefly due to the hot water. The oil is remarkably efficient in reducing reflex excitability in frogs, even after its excitation by Strychnine or Brucine.

Chamomile is popular in domestic practice. An infusion is used by nurses for many infantile complaints, and externally as a fomentation to relieve pain, as in colic, etc. The oil is very efficient in reflex cough, pulmonary catarrh, acute dyspepsia, diarrhœa of children, spasmodic asthma, whooping-cough, colic, and the spasmodic and pseudo-neuralgic affections of hysterical women. It should prove extremely useful in poisoning by Strychnine, from its power over reflex excitability.

The Chamomile of the homœopaths is the *Matricaria Chamomilla*, or German Chamomile, official in the U. S. Pharmacopœia as "MATRICARIA," which see.

ANTIMONIUM, Antimony, Sb.—Metallic Antimony is not official, nor is it used in medicine. It is represented, however, by the following official salts and preparations, viz.:

Compounds of Antimony and their Preparations.

Antimonii et Potassii Tartras, *Antimony and Potassium Tartrate, Tartar Emetic,* $2KSbOC_4H_4O_6.H_2O$,—small white crystals or a granular powder of sweet, disagreeable metallic taste, soluble in 17 of water at 59° F., and in 3 of boiling water, insoluble in alcohol. Dose, gr. $\frac{1}{16}$–$\frac{1}{4}$, but after tolerance is established as high as gr. ij may be given. Is an ingredient of the two following, viz.:

Vinum Antimonii, *Wine of Antimony,*—has of Tartar Emetic 4, Boiling Distilled Water 65, Alcohol 150, White Wine to 1000. Contains about 2 grains of Tartar Emetic to the ℥, and is an ingredient of Mistura Glycyrrhizæ Composita. Dose, ♏ v–xv, as a febrifuge and expectorant.

Syrupus Scillæ Compositus, *Compound Syrup of Squill, Cox's Hive Mixture, Hive Syrup,* (See under SCILLA),—contains about 1 grain of Tartar Emetic to the ℥, with Squill, Senega, etc. Dose, ♏ j–ʒ j, cautiously in children.

Antimonii Oxidum, *Antimony Oxide,* Sb_2O_3,—a heavy, gray powder, insoluble in water or alcohol, but readily and wholly soluble in Hydrochloric or Tartaric Acid solutions. Dose, gr. j–iij. It constitutes ⅓d of—

Pulvis Antimonialis, *Antimonial (or James') Powder,*—consists of the Oxide of Antimony 33 parts, with 67 of Calcium Phosphate. Dose, gr. iij–viij, every 3 hours as a diaphoretic, larger doses for emetic and cathartic effects.

Antimonii Sulphidum, *Antimony Sulphide,* Sb_2S_3,—is the native sulphide, purified by fusion, and as nearly free from Arsenic as possible; steel-gray masses, or a black, lustreless powder, insoluble in water or alcohol. Dose, gr. ¼–j.

Antimonii Sulphidum Purificatum, Sb_2S_3,—is purified by maceration in Aq. Ammoniæ, washing and drying. Dose, gr. ¼–j.

Antimonium Sulphuratum, *Sulphurated Antimony, Kermes Mineral,*—is chiefly Sb_2S_3, with a very small amount of Sb_2O_3. A reddish-brown, odorless and tasteless powder, insoluble in water or alcohol. Is a constituent of Pil. Antimonii Compositæ. Dose, gr. j–v.

Pilulæ Antimonii Compositæ, *Plummer's Pills,*—each pill containing about gr. ½ each of Calomel and Sulphurated Antimony, with Guaiac and Castor Oil.

PHYSIOLOGICAL ACTION.

TARTAR EMETIC in its action represents the other official antimonial preparations, being a cardiac, arterial and general depressant, a protoplasmic poison, a systemic and local emetic, a specific gastro-intestinal irritant, an expectorant and a diaphoretic. Like Aconite, Arsenic, Hydrocyanic Acid and Potassium, it is destructive to protoplasm, destroying function in all nitrogenous tissue, and paralyzing the spinal cord, the motor nerves, the muscles and the sensory nerve terminations. It is especially depressant to the heart-muscle and the cardiac motor ganglia; it combines with the red blood-corpuscles, lessening their oxidizing power, lowering the blood-pressure and reducing the body-temperature. Its taste is styptic and one of its earliest effects is the production of constriction of the fauces. It promotes waste and rapid excretion of waste-products, carbonic acid and urea being especially increased. Being eliminated by all the excretory organs, including the skin, it excites follicular inflammation at the points of elimination; resulting in an eruption which is papular at first, then becomes vesicular, and finally pustular, the pustules being umbilicated, like those of variola. This same eruption is also produced by the application of the drug to the skin with friction. Aphthous ulcerations, extending from the mouth to the stomach, with salivation and painful deglutition, may also result from its continued use.

In small doses Tartar Emetic stimulates secretion in the bronchial and salivary glands, the stomach, intestinal canal, liver and pancreas. In larger doses it excites nausea, vomiting and purging, with evacuations like the "rice-water discharges" of cholera, and great prostration of the vital powers. Toxic doses produce similar symptoms, besides epigastric pain, cyanosis, delirium, cramps, motor and sensory paralysis, suppression of urine and collapse,—much the same phenomena as observed in Asiatic cholera.

The SULPHIDE occurs native, and is the source from which the other compounds are prepared. It seems to be inert medicinally. SULPHURATED ANTIMONY owes its efficacy to the small quantity of the Oxide contained in it, and as this is variable, the action of the preparation is uncertain. The OXIDE has a similar action to that of Tartar Emetic, but being insoluble in water, it is of much less certain activity.

Antidotes and Antagonists.

Tannic Acid, or any substance containing it, is the antidote, forming the insoluble tannate. Opium, Alcohol, Ether, and other antispasmodics are physiological antagonists. Demulcent drinks should be freely administered to protect the mucous membranes. Alkalies and Salts of Lead decompose Tartar Emetic.

THERAPEUTICS.

TARTAR EMETIC was formerly much employed as an antiphlogistic on account of its power to cut short acute inflammations of sthenic type, and its use was very much abused, so that it has now gone out of fashion as a remedy. The contra-stimulant treatment of pneumonia and other inflammatory diseases by large doses of this salt after tolerance was established, is only worthy of reference as an historical fact. The same may be said of its external use as a counter-irritant as well as of its employment as an emetic, in both of which capacities it is too severe, while its emesis is too tardy in action to be of any value in poisoning. It is, however, a very efficient agent in many grave affections, if used in small doses (gr. $\frac{1}{60}$–$\frac{1}{40}$); being highly efficacious in acute inflammatory affections of the respiratory tract, especially pneumonia, broncho-pneumonia, acute œdema of the lungs, feverish and catarrhal colds, bronchitis, laryngitis and tonsillitis. In many respects it acts like Aconite in these and kindred affections, producing copious diaphoresis, slowing the pulse and allaying restlessness. It is considered a good remedy in puerperal peritonitis, mammitis and orchitis, in lumbago and other muscular rheumatisms, also in photophobia and in gastric indigestion after beer-drinking. In still smaller doses (gr. $\frac{1}{100}$ hourly) it is particularly efficient in catarrhal inflammations of the respiratory mucous membrane in children, accompanied by rattling breathing and much mucus, which is expelled with difficulty. Such cases often simulate asthma, the attacks being marked by cough, wheezing, and difficult respiration, with sibilant râles in the chest, and usually follow on severe colds or on measles. The Compound Syrup of Squill is commonly used as an expectorant and nauseant in the treatment of bronchitis and croup. The quantity of Tartar Emetic in it (gr. j to the ℥) should be remembered in administering it to children. (See SCILLA.)

The OXIDE is chiefly employed in the form of James' Powder (Pulvis Antimonialis) for its mild diaphoretic qualities. The SULPHIDE is not used in medicine. SULPHURATED ANTIMONY is very uncertain in action and is but little used. The Compound Pill of Antimony (Plummer's Pill) was devised to obtain mercurial results without writing Hydrargyrum on a prescription.

ANTIPYRINUM, **Antipyrin**, *Dimethyl-phenyl-pyrazolon*, *Phenazone*, $C_{20}H_{18}N_4O_2$ (Unofficial),—is a synthetical base, which forms salts analogous to those of Ammonium. It is a product of the destructive distillation of Coal-tar (compare CHINOLINUM), prepared by a patented and complicated process. It may also be obtained synthetically by heating Methyl-oxy-chinicin with Phenyl-hydracin, and collecting the powder. It occurs as a grayish or reddish-white crystalline powder, which combines with acids to form salts, is somewhat bitter, and soluble in one-half its weight of hot water, and in its own weight of cold water; but is still more so if the water is acidulated with dilute nitro-hydrochloric acid. It is less soluble in alcohol, chloroform or ether, gives an intensely *red* color with Ferric Chloride, a beautiful *green* with Nitrous Acid, and a *yellow* color with Nitric Acid, which deepens to *crimson* on warming. It is not irritant to either the stomach or the tissues, and may be administered hypodermically.

Dose and Administration.

The full antipyretic dose for an adult was at first stated at 30 grains hourly for three hours, or 90 grains for the antipyretic effect. For children, gr. j for each year of age as a dose, to be repeated twice, or thrice, with the same intervals between each dose. That such dosage was far too great, soon became evident from the many reports of alarming symptoms of collapse resulting in numerous instances; and the tendency has lately been towards a decreased dose at shorter intervals, which should be lengthened as soon as the drug-effects begin to be manifested. An average adult dose is now placed at 10 grains, for children ¼ grain per year of age between 2 and 5, ½ grain per year from 5 to 10; not exceeding 5 grains at a dose for any child under 15 years of age.

Antipyrin has but little flavor, is not unpleasant, and is therefore readily taken by children, in which respect it is greatly superior to Quinine. It may be administered in compressed tablets, each having from 1 to 5 grains;—or in Aromatic Elixir,—say gr. lxxx in ℥iv, of which solution each ʒ contains gr. ijss. If vomiting result, the same dose may be dissolved in half its weight of *hot* water, and injected hypodermically while warm.

Antagonists and Incompatibles.

Antipyrin may be decomposed when brought into contact with Nitrous compounds, a new and poisonous substance being supposed to be formed, of uncertain composition, but resembling the Anilin greens. The mixture of this drug with Spiritus Etheris Nitrosi is, therefore, highly dangerous, if this supposed reaction is at all likely to occur.

It is more or less decomposed or thrown out of solution by a large number of chemical compounds and other preparations, of which the following are the most important, viz. :—

Acid, Hydrocyanic, Dilute.
Acid, Tannic.
Butyl-chloral Hydrate.
Chloral Hydrate.
Cinchona, Decoction.
Cinchona, Fluid Extract.
Catechu, Infusion (conc.).
Ferrum, Sulphate.
Ferric Salts in Solution.
Hamamelis, Tincture.
Iodine, Tincture.
Arsenic and Mercury, Solution of the Iodides of.
Mercuric Chloride.
Naphthol β (solid).
Nitrites in solution (acid).
Sodium Bicarbonate.
Sodium Salicylate (solid).
Tinctures containing Tannin, Iron, or Quinine.
Rose, Infusion.
Uva Ursi, Infusion.

Antipyrin and Phenyl-urethan liquefy when rubbed together.

Derivatives and Allied Compounds.

Salipyrin, *Antipyrin Salicylate*, (Unofficial),—is formed by combining Salicylic Acid 57·7, and Antipyrin 42.3 parts; and is the only salt of the base which has any therapeutic importance. Described under SALIX.

Hypnal, (Unofficial),—is a combination of Antipyrin and Chloral, heated together, which is credited with hypnotic and analgesic power. Described under CHLORAL.

PHYSIOLOGICAL ACTION.

Antipyrin is a powerful antipyretic, a local anæsthetic, and a general analgesic,—and also possesses diaphoretic, mydriatic, antiseptic, disinfectant, hemostatic and slightly hypnotic powers. After the ingestion of a full medicinal dose (gr. xx–xxx), there is a stimulant stage of short duration, in which the heart's action is increased, and a subjective sense of heat is experienced, with flushing of the face. This is soon followed by profuse sweating, coldness of the surface, slowed pulse, considerable depression, and if fever be present by *lowered temperature;* the latter coming on within half an hour after taking the drug and its degree being in direct ratio to the quantity administered, as also its continuance,—the former being usually from 3 to 5 degrees, and the latter from 1 to 10 hours, a fair average being about 2 hours. In one case a fall of 12° F. was observed.

When given with Kairin, the mixture of the two drugs has been found to produce a much greater fall of temperature, with longer continuance down, than that produced by an equal quantity of either drug given alone.

After the antipyretic effect of the dose has passed off, the temperature (in fever) commences to rise again,—the onset being usually preceded by a chill, which is of slight degree when compared with the severe rigors and dangerous depression occurring under the action of Kairin, Chinolin, and other members of the group.

In health the administration of a full dose gives rise to slight nausea, singing in the ears, and a reduction of the body temperature of scarcely any extent, about $\frac{1}{10}$° F. It slightly raises the arterial tension and blood-pressure;—sometimes (but seldom) induces vomiting, also a peculiar eruption on the skin;—and may cause such a degree of depression as to amount to collapse. It has no effect upon the respiration, but acts as a sedative upon the cerebrum, leaving behind a somewhat depressant influence on the brain. It dilates the pupils and is eliminated by the kidneys, appearing in the urine some three hours after its ingestion. The profuse sweating which it causes may be prevented by giving in advance a small dose of Atropine or Agaricine.

In toxic dose its principal influence is exerted upon the blood, altering the shape of the red corpuscles, separating the hematin, and causing decomposition of that fluid.

As an Antipyretic, Antipyrin, like Alcohol, acts by a double mode of operation,—(1) by diminishing oxidation, and (2) by promoting heat-loss. The latter is attained by dilating the cutaneous vessels, allowing free radiation from the surface, and by the refrigerant action due to evaporation of the sweat.

As an Analgesic, Antipyrin has a very considerable degree of power, in common with all the Chinolin derivatives; but its property in this respect is found to act almost entirely upon pain due to manifestations of the rheumatic diathesis. In general anodyne action, it is not to be compared with the derivatives of Opium. Its hemostatic power is claimed to be superior to that of Ergotine.

THERAPEUTICS.

One of the most popular of the modern antipyretics, Antipyrin deserves high rank in professional esteem, being one of the most certain and most powerful depressants of temperature, though somewhat dangerous, and devoid of any other influence upon the course of any febrile disorder. Its principal applications are as follows, viz.:—

In hyperpyrexia from any cause it is efficient. In acute rheumatism, it has held a high place as a remedy, for some time. In typhoid fever and other febrile conditions, wherein hyperpyrexia occurs, as phthisis, erysipelas, pleuritis, pneumonia, surgical fever, etc. In neuralgiæ, neuritis, and other painful affections, especially when of rheumatic origin,—as lumbago, sciatica, hemicrania, supra-orbital neuralgia, etc., in which 10-grain doses are generally sufficient, and may be given hypodermically. In painful affections of hysterical persons;—pain from cerebral tumors and from cardiac diseases,—also painful menstruation;—all of which are often relieved by it. In acute paroxysms of gout, a dose of 10 grains every two hours, preceded by a commencing dose of 25 grains, promptly relieved the pain and shortened the duration of the attack in one very thoroughly observed and carefully reported case. In chronic gout, very remarkable results are reported from the use of this agent, indicating a specific action thereon of curative character.

It has seemed to render efficient service in dysmenorrhœa, carbuncle, and cerebro-spinal meningitis; and affords valuable aid in the pyrexia of intermittents, in which stage the slow action of Quinine prevents its availability for immediate relief.

It has rendered signal service in the diarrhœa of children, given in doses of gr. ss to gr. jss; also in the urticaria-like eruptions of children its action when administered internally has been so promptly efficient as to indicate for it a direct influence upon the vascular nerves. As a symptomatic remedy against itching it is equally efficient in nervous pruritus, true prurigo, urticaria, erythema, pemphigus vulgaris, and lichen ruber. As an antigalactagogue 4-grain doses every two hours have proven highly efficacious. It is successfully employed against whooping-cough, chorea, bronchial asthma, and sea-sickness.

For the purpose of relieving pain, the conjoint administration of Antipyrin and Morphine is said to be much more efficient than the use of either agent alone.

APIOLUM, **Apiol**, (Unofficial),—is a non-volatile, oily liquid, of green color, acid reaction and pungent taste, soluble in alcohol, ether, chloroform, and in glacial acetic acid. It is extracted from the fruit of *Petroselinum sativum* (Parsley), a biennial plant of the nat. ord. Umbelliferæ, which also contains a gelatinous substance named *Apiin*, and a *Volatile Oil* which is by some considered to be the true emmenagogue principle of the plant. *Apiol* is probably a mixture of several substances, and as found in commerce is often an impure oleoresin. Dose, ♏ iij–x in capsule two or three times a day; as an emmenagogue, ♏ xv in one daily dose.

A camphor, also named *Apiol*, $C_{12}H_{14}O_4$, is obtained from the same source, and occurs in white needles, of a feeble parsley odor, insoluble in water, but freely soluble in alcohol or ether. Dose, gr. xv as an antiperiodic, gr. v–x against dysmenorrhœa.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

In small doses (♏ iij–v) Apiol is carminative, diuretic, diaphoretic, expectorant and stimulant to the circulation. In full doses (♏ xv) it is decidedly emmenagogue and feebly antiperiodic, producing headache, tinnitus aurium, intoxication, giddiness, etc., its action generally resembling that of Quinine. Large doses (♏ xxx–ʒj) are decidedly narcotic.

It has had some reputation in intermittents and in malarial neuralgiæ, but is most frequently employed in amenorrhœa and dysmenorrhœa, being of especial advantage in the amenorrhœa of anæmia, also when the menstrual discharge is fetid. It is becoming fashionable as a supposed abortifacient, but is useless for this purpose, and if freely used may produce decided narcotism, especially if the preparation employed should happen to be an active one.

The capsules of Apiol put up in France and sold in this country over the counters of drug-stores to any applicant are generally inert; hence cases of poisoning by this drug are seldom observed. They are, however, an important source of revenue to the retailers, as, being "imported" preparations, they command a high price, which is readily paid by gullible women who wish to "bring around their courses."

APOCYNUM, **Canadian Hemp**,—is the root of *Apocynum cannabinum*, an indigenous perennial plant of the nat. ord. Apocynaceæ, and is inodorous, but of bitter, disagreeable taste. It contains a peculiar active principle, *Apocynin*, also tannic and gallic acids, resin, wax, caoutchouc, etc. Dose of the powdered root, gr. v–xxx. A decoction (℥ss to the pint) may be given in doses of ℥j–ij thrice daily.

Extractum Apocyni Fluidum, *Fluid Extract of Apocynum*,—Dose, ♏v–xxx.

Apocynum is powerfully emetic and cathartic in full doses, also diaphoretic, expectorant and sometimes actively diuretic. It lowers the pulse-rate, produces much nausea, and induces drowsiness. It should not be confounded with the Indian or American Hemps (Cannabis sativa), which have entirely different qualities.

The only condition in which Apocynum has proven of much value is dropsy, especially the anasarca of Bright's disease and ascites, in which 15-grain doses are indicated. The active principle, *Apocynin*, is a good expectorant, in doses of gr. $\frac{1}{4}$ to gr. $\frac{1}{2}$.

APOMORPHINA, Apomorphine,—is an artificial alkaloid, prepared from Morphine or Codeine by the action of strong acids or zinc chloride. The Hydrochlorate ($C_{17}H_{17}NO_2HCl$) is official, and occurs in minute, colorless crystals, odorless, of bitter taste, and neutral or faintly acid reaction; soluble in about 45 of water and in the same quantity of alcohol at 59° F., almost insoluble in ether or chloroform; decomposed by boiling water or boiling alcohol.

Dose, gr. $\frac{1}{20}$ to $\frac{1}{10}$ hypodermically, gr. $\frac{1}{10}$ to $\frac{1}{6}$ by the mouth. For young children, gr. $\frac{1}{60}$ to $\frac{1}{50}$ should not be exceeded. Solutions should be fresh when used, and as they alter rapidly by keeping, should have a few drops of hydrochloric acid added to them, to prevent decomposition.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Apomorphine is a systemic emetic, acting directly on the vomiting centre, and is the quickest, most certain and least irritating of all emetics, acting in from five to twenty minutes with but moderate nausea. In large dose it is very depressant to the heart (gr. $\frac{1}{15}$ having caused death in a weak adult by cardiac failure), and produces paralysis of the motor and sensory nerves, delirium, convulsions, and depression of respiratory power. Small doses (gr. $\frac{1}{80}$) are expectorant.

The Hydrochlorate is the preparation usually employed, and the only official one. It is the best emetic to use in many cases of poisoning, particularly when swallowing is difficult, but is useless in narcotic poisoning after narcosis has blunted the vagus centre. It is a very desirable agent in any case where time is of great importance.

As an expectorant it is highly recommended but has not yet been much used. In catarrhs the $\frac{1}{30}$ of a grain every 3 hours will prove of great advantage, but it must be used with caution, especially in young children, who bear this remedy very badly.

In hacking coughs without expectoration it has proven a very efficient agent, given in minute doses, gr. $\frac{1}{16}$ to $\frac{1}{20}$ in the 24 hours.

AQUA, Water, H_2O,—is natural water, in its purest attainable state; a colorless limpid liquid, devoid of odor or taste, and of neutral reaction. Besides entering into the composition of most of the official extracts, fluid extracts, and many other pharmaceutical preparations, from it are prepared the 17 official Waters (Aquæ), and also the following:—

Aqua Destillata, *Distilled Water*, H_2O,—1000 parts of water are distilled, the first 100 parts obtained being thrown away, 800 parts are preserved. It is as near chemically pure water as can be obtained.

Aqua Carbonata, *Carbonated Water, Soda-water*, (Unofficial),—is water highly charged with carbonic acid gas, CO_2, the excess of gas being dissolved in the water by pressure, and escaping in bubbles when the pressure is taken off. It was official in the U. S. P., 1870, under the title Aqua Acidi Carbonici, the formula requiring that the water be charged with five times its volume of gas, for which a pressure of five atmospheres is required. The materials usually employed by soda-water manufacturers for producing the gas, are either Sodium Bicarbonate or Marble-dust, and Sulphuric Acid.

Nomenclature of Water.

AQUA FLUVIALIS, River-water.
AQUA PLUVIALIS, Rain-water.
AQUA FONTANA, Spring or Well-water.
AQUA MARINA, Sea-water.
AQUA CARBONATA, Carbonated Water, Soda Water.
AQUA DESTILLATA, Distilled Water.
AQUA BULLIENS, Boiling Water.
AQUA FERVENS, Hot Water.
AQUA COMMUNIS, Common Water.
BALNEUM MARIS, Warm-water Bath.
BALNEUM VAPORIS, Vapor Bath.

MINERAL WATERS.

Natural Water differs from Distilled in containing saline and other constituents in varying proportions,—from common water (Aq. Communis), in which they are so small in quantity as not to alter the taste, color, etc., up to the Sea-water, having 3⅓ per cent., and that of the Dead Sea with 26½ per cent. Spring waters, impregnated with foreign substances so as to have a decided taste and a marked action on the human system, are called *Mineral Waters*, which may be subdivided into various groups, according to their prevailing constituents, as *Carbonated, Alkaline, Saline, Sulphuretted, Silicious*, etc. Full analyses of all the principal mineral waters of Europe and America are given in the *United States Dispensatory*, but a few of the most prominent will be mentioned here.

Carbonated Mineral Waters.

Selters, Nassau, Germany, ...	30	cubic inches	of CO_2 to the pint.
Apollinaris, Nuenahr, Prussia, ...	47	"	
Old Sweet Spring, West Virginia, ...	11	"	
Sweet Chalybeate Spring, Virginia, ...	13	"	

These waters are cold, contain generally Carbonates of Calcium, Magnesium and Sodium (in some, Iron), which are held in solution by the excess of Carbonic Acid, also Chlorides of Sodium and Potassium, Sulphates, Phosphates, etc.

Alkaline Mineral Waters.

Ems, Germany.
Salzbrunn, Germany.
Gleickenberg, Austria.
Vichy, France.
Vals, France.
Bladon Spring, Ala.
Congress Spring, Cal.
Seltzer Spring, Cal.
Perry Spring, Ills.
St. Louis Spring, Mich.
Buffalo Lithia Spring, Va.
Hot Spring, Va.
Warm Spring, Va.
Berkeley Spring, Va.
Bethesda Spring, Wis.
Gettysburg Spring, Pa.

These waters are generally cold, those of Vichy and Ems being warm. They contain a considerable amount of Sodium Carbonate, also Sodium Chloride and Sulphate, and various other Chlorides, Carbonates and Sulphates, with Carbonic Acid gas in varying quantity. *Vichy* and *Vals* waters depend for their efficacy almost wholly on the quantity of Sodium Carbonate contained in them, which is for Vichy from 26 to 50 grains and for Vals about 60 grains to the pint.

Saline Mineral Waters.

Friedrichshall, Germany.
Hunyadi Janos, Hungary.
Baden-Baden, Germany.
Wiesbaden, Germany.
Carlsbad, Bohemia.
Pullna, Bohemia.
Seidlitz, Bohemia.
Marienbad, Bohemia.
Cheltenham, England.
Kissengen, Bavaria.
Reichenhall, Bavaria.
Adelheidsquelle, Bavaria.
Kreutznach, Prussia.
Saratoga Springs, N. Y.
Ballston, N. Y.
Hot Springs, Arkansas.
St. Catherine's, Ontario, Canada.

These waters are of more complex composition, the various waters of Saratoga containing more than thirty constituent salts. Those usually present are the Sulphates and Carbonates of Sodium, Calcium, Magnesium, etc. (*Magnesian waters*); Chlorides of Sodium, Potassium and Lithium (*Chlorinated waters*); Ferrous salts (*Chalybeate waters*), with Iodine, Bromine, Manganese salts, and Phosphates in some few. Carbonic Acid gas is present in all. Most of them are purgative, some are considered alterative, and many are warm (100°–160°).

The most powerful member of the saline group is *Hunyadi Janos*, which contains about 150 grains each of Magnesium and Sodium Sulphates to the pint, and is, therefore, effectively purgative. Nearly as strong is *Püllna* water, with 124 grains of Sodium Sulphate and 93 grains of Magnesium Sulphate to the pint. *Friedrichshall* is less powerful, but perhaps a better aperient water in doses of 6 to 10 fluid ounces. *Marienbad* contains no Magnesium Sulphate, but has 36 grains of Sodium Sulphate, 9 of Sodium Carbonate, 11 of Sodium Chloride, and a small quantity of Ferrous Carbonate to the pint; in transportation, however, it loses its Carbonic Acid and deposits the Iron. It is not aperient in ordinary doses. *Carlsbad* water contains 20 grains of Sodium Sulphate and 9 each of Sodium Carbonate and Chloride to the pint. The so-called "Carlsbad Salt" is simply Sodium Sulphate with a trace of the Carbonate. Hartnack gives the following formula for its artificial preparation: Sodium Sulphate 100 parts, Sodium Bicarb. 80, Sodium Chloride 40; a dessertspoonful in water as a mild saline purgative. These waters are imported into, and made in the United States in large quantities, and may be ordered through any druggist.

Sulphurous Mineral Waters.

Aix-la-Chapelle, Prussia.
Barèges, S. France.
Eux-Bonnes, S. France.
Llandrindod, Wales.
Harrowgate, England.
Blue Lick Spring, Ky.
Sharon Spring, N. Y.
Yellow Sulphur Spring, Va.
White Sulphur Spring, W. Va.
Salt Lake Warm Springs, Utah.

These waters all contain Sulphuretted Hydrogen gas, also Carbonic Acid gas and Carbonates, Chlorides and Sulphates of Sodium, Potassium, Magnesium and Calcium; sometimes Carbonate and Oxide of Iron, Iodide and Bromide of Sodium.

Silicious Mineral Waters.

Hot Springs, Iceland.
Geysers of Yellowstone Park.

The constituents of these waters are chiefly alkaline Silicates.

PHYSIOLOGICAL ACTION OF WATER.

WATER is an essential constituent of all the tissues of the body, forming from 0.2 per cent. of the enamel of the teeth to 77 per cent. of the ligaments. In the liquids of the organism it is contained in the proportions of 78 per cent. of the blood to 93 of the urine, and 99 of the tears. In moderate quantity it is necessary to digestion, but in large amount it weakens digestion by diluting the gastric juice. Ice-cold water, if freely used, suspends the action of the pepsin, depresses the nerves of the stomach, and lowers its blood supply. The free use of water internally produces increased cutaneous and renal excretion, and promotes the elimination of some of the products of tissue-change, as urea, phosphoric acid, etc. In some subjects it favors the deposition of fat.

COLD WATER applied externally, as by a bath (40°–60° F.), abstracts a portion of the body-heat, lowering the surface temperature and depressing the cutaneous nerves, producing spasmodic breathing and a quickened pulse. If the temperature of the water is not too low and the bodily vigor is good, reaction soon occurs, and the general effect is tonic to the muscular power, circulation and respiration. If this does not take place a secondary chill occurs, and serious depression may result.

WARM WATER (95°–100° F.) applied to the surface of the body, as by baths of water or steam, packing, etc., acts in the opposite manner at first, increasing the circulation in the skin, the rapidity of the pulse and respiration and the body temperature. Rapid tissue-change occurs, the waste products being eliminated chiefly by the skin and the pulmonary mucous membrane. If long-continued, precordial oppression, giddiness and muscular debility are experienced.

HOT WATER (110°–112° F.) at first dilates the vessels of the part to which it is applied, and soon afterwards contracts them. It is a valuable means of relieving congestion and inflammation, and is a most effective hemostatic when the bleeding is from small vessels or of capillary character. Whether generally or locally applied it is one of the most reliable means of relieving spasm.

HOT VAPOR applied to the surface accelerates the circulation and produces profuse sweating. Its general action is similar to that of warm water.

MINERAL WATERS taken internally act chiefly by virtue of the water, partly in accordance with the effects of their various constituents. As baths, their action is doubtless entirely due to their temperature.

Pathogenic Microbes of several diseases, notably those of cholera and typhoid fever, are conveyed to the human system in drinking water contaminated therewith. But these organisms are destroyed by a temperature of 144° F. in the absence of their spores, while a temperature of 212° F., that of boiling water, maintained for five minutes, destroys the spores of all pathogenetic organisms which have been tested (Sternberg). This fact is of the highest practical importance, as it shows that no germs of disease need ever gain entrance to our bodies through our drinking water, if we will only boil it. Many years ago an English physician's report was quoted in Braithwaite's Retrospect, in reference to the immunity of the Chinese from typhoid fever, though, he said that in Pekin there was no system of sewerage, but that all excreta was thrown on the ground to find its way into the watercourses by which the city was supplied, to soak into wells, etc. Yet, the author said, that contrary to all experience elsewhere, typhoid fever was unknown in Pekin. The reason is to be found in the fact that the Chinese boil all the water they drink.

Those who know them best say that they never drink cold water, but always tea, *i. e.*, boiled water. Something there must be to account for their remarkable health under otherwise adverse hygienic surroundings.

THERAPEUTICS OF WATER.

COLD WATER or ICE has many external applications of value in the treatment of disease. As a wet pack it is used in tonsillitis, diphtheria and croup. Cold baths are the most effective antipyretic in the high temperature of fevers, and the cold wet pack is used for the same purpose. Ice or cold water is applied to the head in acute cerebral congestion, and to the spine in chorea, etc.; also locally in hemorrhoids, bubo, orchitis, and to the uterus in post-partum hemorrhage. Cold affusion to the body is employed as a preventive of spasmodic croup, as well as to lessen the tendency to taking cold.

HOT WATER externally as fomentations, hot wet pack, baths, etc., is most effective in reducing local congestion and setting up resolution of local inflammation. Hot fomentations to the renal region are useful in functional inactivity of the kidneys. The hot spinal douche is used in affections of the spinal cord and meninges, and in the backache of women. The hot wet pack is highly esteemed in inflammation of the chest organs, and hot injections for chronic inflammation of the uterus. Hot water dressings for wounds are strongly favored by many high surgical authorities. Vapor and Turkish baths are used as diaphoretics in advanced kidney disease, in acute and chronic rheumatism, mineral poisoning, and syphilis. Warm baths, with cold applications to the head, are esteemed of value in infantile convulsions and chorea.

Internally, water is chiefly of value as a diuretic, and if hot as a diaphoretic. A glass of cold water before breakfast daily is often an effective means of overcoming constipation, while the drinking of hot water an hour before each meal has been of great value to many dyspeptics. The value of the popular teas in chronic diseases is almost entirely due to the diluent, diuretic and diaphoretic actions of the hot water used.

CARBONATED WATER, or "Soda-water," as it is popularly called, is employed as a grateful beverage in hot weather, being flavored with various syrups. It is also an agent of great value for febrile cases, as it allays thirst, lessens nausea, and promotes the secretion of urine. It forms an excellent vehicle for the administration of the saline cathartics, especially Magnesium Sulphate, and of the various carbonates. It is one of the numerous agents which have been found efficacious in the vomiting of pregnancy.

THERAPEUTICS OF THE MINERAL WATERS.

An undue value is placed by the laity and interested proprietors on the medicinal value of mineral waters, causing the various localities of the best advertised springs to become resorts for invalids and idlers from every civilized country. The benefit derived is in most instances due to the change of climate and scene, freedom from home cares and business worry, regularity of life and diet, drinking of water in quantity, and in many cases the substitution of water for alcoholic beverages. In order to get the worth of their money, people will gladly submit to rigid hygienic and dietetic restrictions at a watering-place which they would totally ignore under treatment at home. The same may be said of the treatment at the so-called "hydropathic" or "water-cure" establishments. As a rule, those springs will prove of most value which are furthest removed from the patient's residence, for "distance lends enchantment" in these matters as well as in many others. Invalids whose homes are in the vicinity of some wonder-working spring will not usually derive much benefit from its water, but will by that of another spring, similar in constituents, but located several hundred miles away.

The principal affections in which mineral waters are esteemed most highly are the following: dyspepsia, cirrhosis of the liver, gout, rheumatism, lithiasis, diabetes of hepatic origin, constipation, strumous disorders, obesity, plethora of the pelvic organs, hypochondriasis, skin diseases, especially those dependent on gastric derangement, phthisis, constitutional syphilis, metallic poisoning, etc., in all of which the influences above mentioned are especially efficacious, and are no doubt the chief factors in producing any benefit which may be attainable. Aperient and purgative waters are useful in many cases where a prejudice exists against purgative medicine, but none against the same agents in a natural water. The strong saline-aperient waters, as Carlsbad, Hunyadi, Friedrichshall, etc., have considerable repute in the treatment of the uric-acid diathesis and calculous affections, and the waters of St. Catherine's Wells are credited with decided influence upon local and chronic rheumatism.

The special therapeutics of mineral waters are to be found in this volume under the heads of their principal constituents, as Sodium Chloride, Sodium Sulphate, Magnesium Sulphate, etc., also in the therapeutical part of the book.

ARGENTUM, Silver, Ag,—is represented by the following four official salts, viz.:—

Silver Compounds and their Preparations.

Argenti Nitras, *Silver Nitrate,* $AgNO_3$,—occurs in colorless rhombic crystals, of bitter caustic taste and neutral reaction, soluble in 0.6 of water and 26 of alcohol at 59° F. Is best given in pill or distilled water; never with tannin or a vegetable extract, lest an explosive compound result. Dose, gr. ⅙-½,—if watched, up to gr. j may be given. When melted with 4 per cent. of Hydrochloric Acid, it makes—

Argenti Nitras Fusus, *Moulded Silver Nitrate, Lunar Caustic,*—for local use as a mild caustic and astringent. **Argenti Nitras Dilutus,** *Diluted Silver Nitrate, Mitigated Caustic,*—is the same salt melted with twice its weight of Potassium Nitrate. Is used locally by ophthalmologists.

Argenti Cyanidum, *Silver Cyanide,* AgCN,—has no medicinal use except for the extemporaneous preparation of Hydrocyanic Acid. (See *ante*, page 74.)

Argenti Iodidum, *Silver Iodide,* AgI,—a greenish yellow powder insoluble in water or alcohol. Is used instead of the nitrate internally, as it is supposed not to discolor the skin. Dose, gr. ¼-j in pill.

Argenti Oxidum, *Silver Oxide*, Ag_2O,—a brownish black powder, nearly insoluble in water and insoluble in alcohol. It should not be triturated with readily oxidizable or combustible substances, and should not be brought into contact with ammonia. Dose, gr. ½–ij in pill. Is not dangerous.

All the silver salts should be protected from light in dark amber-colored vials.

PHYSIOLOGICAL ACTION.

SILVER NITRATE is a powerful astringent and a limited escharotic. Applied to the skin or mucous membrane it combines with the albumen of the tissue, excites superficial inflammation, which is soon followed by an altered condition of the part, and stains the same black under the influence of light. The stains may be removed by washing with a strong solution of Potassium Cyanide. Given internally in small doses it increases secretion, stimulates the heart, promotes nutrition, and acts as a nerve tonic. Its continued use produces symptoms which are collectively termed *Argyria*, and are as follows: gastro-intestinal catarrh, tissue waste, uræmia, albuminuria, fatty degeneration of the heart, liver and kidneys, hemorrhages, fluidity of the blood, a slate-colored line along the margin of the gums, and a similar discoloration of the skin and mucous membranes, with centric impairment of the nervous system producing paralysis on a large scale, loss of coördination power, convulsions, and finally death by paralysis of respiration. Large doses produce violent gastro-enteritis, also ulcer of the stomach from thrombosis of its veins, and destruction of the gastro-intestinal mucous membrane.

The IODIDE and OXIDE are sometimes used to produce the same constitutional effects, they being supposed not to discolor the skin, but this has been found to be fallacious. The oxide is much the least irritant of the silver salts.

Antagonists and Incompatibles.

Common Salt freely used is the antidote, precipitating the silver as the insoluble chloride and acting as an emetic. The Nitrate is exceedingly sensitive to organic material and light, which decompose it readily. Incompatibles are all the soluble *Chlorides* (hence it should be used in distilled water), most of the Mineral Acids and their salts, Alkalies and their Carbonates, Lime-water and astringent infusions.

A course of silver medication should be regulated by suspending the remedy after 5 or 6 weeks' use, and then promoting elimination by purgatives, diuretics and baths. To prevent the general discoloration Potassium Iodide should be given conjointly with the silver, and baths of Sodium Hyposulphite used frequently.

THERAPEUTICS.

Locally the NITRATE is much used as a stimulant application, an astringent, a caustic, an alterative and an antiphlogistic. To ulcers and in throat affections the solid stick may be used, but solutions of various strengths, from gr. j to gr. xl to the ℥, are much better. The mildest solutions are employed in conjunctivitis (never over the cornea), the stronger in throat and mouth affections, and the strongest in lupus, erysipelas and other skin diseases. A solution in Nitrous Ether (gr. xl to the ℥) is said to abort superficial inflammations if applied early to the neighboring integument, and in erysipelas a solution of gr. xx to the ℥ is often used over the inflamed surface and beyond, after careful washing and drying, in the hope of preventing the extension of the disease, which it will not do. The mucous membrane of the conjunctiva, fauces, larynx, urethra, bladder, uterus, vagina and rectum, have all been subjected to the local action of this salt.

Internally the silver salts are used in dyspepsia with vomiting of yeasty fluid, chronic gastritis and gastric ulcer, dysentery of chronic type, especially if rectal ulcer (the Nitrate internally and by enema), the diarrhœa of phthisis and typhoid fever (Nitrate with Opium), chronic spinal inflammations causing locomotor ataxia or paraplegia, and epilepsy; in the latter affection the Nitrate having occasionally given good results.

The OXIDE has been used internally for gastric neuralgia, irritative dyspepsia, pyrosis, gastric and pulmonary hemorrhages, and menorrhagia. The IODIDE is employed to obtain the constitutional effects of silver, but has no advantages over the other preparations.

ARNICA,—is the plant *Arnica montana* or Leopard's Bane, a perennial of the nat. ord. Compositæ, indigenous to the mountains of Northern Europe and Siberia, and said to have been also found in the mountains about the headwaters of the Missouri and Columbia rivers. It has large orange-yellow flowers, and a small, curved rhizome with several rootlets. Both the flowers and the roots are official. Its most important constituent is *Trimethylamine*, C_3H_9N, an ammoniacal alkaloidal principle, which is probably the active ingredient. It also contains *Arnicin*, *Inulin*, *Capronic* and *Caprylic Acids*, tannin, mucilage, resins, and two essential oils, one of which exists in the flowers, the other in the root.

Arnicæ Flores, *Arnica Flowers*,—the flower-heads of *Arnica montana*, large, yellow, having 14 to 16 strap-shaped florets in the ray, twice as long as the disk, which consists of numerous tubular florets. The odor is feebly aromatic, the taste bitter and acrid. Used in Tincture and Infusion.

Arnicæ Radix, *Arnica Root*,—the rhizome and rootlets of *Arnica montana*, is about 2 inches long and 1/8 to 1/6 inch thick, externally brown and rough from leaf-scars, internally whitish, with a thick bark containing a circle of resin-cells and a large, spongy pith. Odor somewhat aromatic, taste pungent, aromatic and bitter. Resembles *Valerian*, which is distinguished by its smell; *Serpentaria*, which has many contorted rootlets; and *Veratrum Viride*, which has thicker rootlets. Dose, gr. v–xx.

Preparations of the Flowers.

Tinctura Arnicæ Florum, *Tincture of Arnica Flowers*,—20 per cent. Dose, ♏ v–xxx.

Infusum Arnicæ, *Infusion of Arnica* (Unofficial),—Arnica flowers 20, to 100 parts of water, is thought by many observers to be the best form for local use, as it does not excite dermatitis, probably from containing none of the Volatile Oil, nor the insoluble principle Arnicin.

Preparations of the Root.

Extractum Arnicæ Radicis, *Extract of Arnica Root*,—Dose, gr. j–iij.

Extractum Arnicæ Radicis Fluidum, *Fluid Extract of Arnica Root*,—Dose, ♏ v–xx.

Tinctura Arnicæ Radicis, *Tincture of Arnica Root*,—10 per cent. Dose, ♏ v–xxx.

Emplastrum Arnicæ, *Arnica Plaster*,—contains Extract of Arnica Root 33 parts to 67 of Lead Plaster.

Derivative.

Trimethylamina, *Trimethylamine*, C_3H_9N (Unofficial),—is a thin, colorless, strongly alkaline liquid, boiling at 50° F., and at ordinary temperatures is a colorless, inflammable gas. The Hydrochlorate is the most stable salt, crystallizing in white or colorless prisms, nearly odorless, of pungent taste, very deliquescent, and freely soluble in water and in alcohol. Dose, gr. ij–iij in syrup every 2 hours.

Trimethylamine has been obtained from Arnica flowers and those of several other plants, from Ergot, Hops, Codeine, Cod-liver Oil, and decomposing albuminous substances, such as human urine, herring-pickle, and the residue left in making sugar from beets. It is sometimes incorrectly named *Propylamine*, a term also applied to an impure trimethylamine, but in reality an allied and isomeric compound.

PHYSIOLOGICAL ACTION.

ARNICA is irritant, stimulant, depressant, antipyretic, diuretic and vulnerary. It irritates the gastro-intestinal tract, and in some persons the local use of an alcoholic preparation of the flowers will excite erysipelatous inflammation of the skin, though those of the root have not been observed to do so. In small doses internally it increases the action of the heart, raises the arterial tension and stimulates the action of the skin and the kidneys. Large doses produce a transient excitement, followed by depression of the circulation, respiration, and nerve-centres; headache, unconsciousness, and even convulsions being induced, the body-temperature lowered, the pupils dilated, and muscular paresis produced. A toxic dose paralyzes the nervous systems of animal and organic life, causing collapse and death.

THERAPEUTICS.

ARNICA is a popular remedy with those who patronize the so-called homœopathic school of practice, but like many other agents which the homœopathists claim to have given to medicine, it is a remedy much older than homœopathy, and was investigated originally by regular physicians, notably by Van der Kolk in the sphere of mental affections.

Externally, the tincture in water has a popular reputation in sprains, bruises, etc., though an infusion is better for local use. Ecchymoses are rapidly dispersed by its administration internally as well as externally; and, in internal bruises from shocks or concussions, its internal use has proven very efficacious. The aqueous preparation locally promotes the rapid union of cut surfaces.

Internally, besides its value as noted above, Arnica is undoubtedly employed in typhus and typhoid fevers as an efficient stimulant and antipyretic; also in delirium tremens, rheumatism and rheumatic gout, hemorrhages, epistaxis, hæmoptysis, amaurosis, concussion of the brain, chronic dysentery, and paralysis of the bladder, it has rendered good service.

In idiopathic mania, after the first excitement has diminished, Arnica, in aqueous preparation internally, has given great satisfaction. It has often checked an exhausting diarrhœa after many other remedies have failed.

Trimethylamine is an active escharotic and a gastro-intestinal irritant. It lowers the rate and force of the heart, decreases the body-temperature, and diminishes (though sometimes increases) the excretion of urea. The Hydrochlorate is a powerful antipyretic in doses of gr. ij every 3 hours. It has been found useful in acute rheumatism and gout, relieving pain, reducing temperature, and diminishing the frequency of the pulse. In chronic rheumatism, as a liniment (1 to 3 of Glycerin), it is said to give relief equal to that produced by any anodyne. It has also been used with benefit in chorea, moderating the spasmodic movements when not suspending them entirely.

ARSENUM, Arsenic, As.—The metal Arsenic is not used in medicine, but is represented by one of its Oxides, a salt of another Oxide, and the Iodide, which are official; together with four preparations of these compounds, or of their salts, viz.:—

Arsenic Compounds and their Preparations.

Acidum Arsenosum, *Arsenous Acid, Arsenic Trioxide, White Arsenic,* As_2O_3,—is a heavy, white solid, occurring as an opaque powder, or in semi-transparent masses having usually a striated appearance, soluble in 30 to 80 of water at 59° F., the solubility varying with its physical condition, also soluble in 15 of boiling water, in alkalies and their carbonates, hydrochloric acid and in glycerin. It is volatilized at 424.4° F., without melting, and when thrown on ignited charcoal it emits an alliaceous odor. Arsenous Acid is obtained by roasting native arsenides, and condensing the fumes in a long horizontal chimney. Dose, gr. $\frac{1}{30}$ to $\frac{1}{10}$.

Liquor Acidi Arsenosi, *Solution of Arsenous Acid,*—is a 1 per cent. solution in HCl and Distilled Water. Dose, ♏ij–viij, thrice daily in water after meals.

Liquor Potassii Arsenitis, *Solution of Potassium Arsenite, Fowler's Solution,*—is a 1 per cent. solution, prepared by boiling together Arsenous Acid 1, Potassium Bicarbonate 2, Comp. Tincture of Lavender 3, and Distilled Water to 100. Dose, ♏ij–viij, in water thrice daily after meals.

Sodii Arsenas, *Sodium Arsenate,* $Na_2HAsO_4 + 7H_2O$,—is a salt of the second oxide, Arsenic Acid, As_2O_5. Occurs in colorless prismatic crystals, of feebly alkaline taste and a faintly alkaline reaction, soluble in 4 of water at 59° F., very soluble in boiling water, hardly soluble in alcohol. Dose, gr. $\frac{1}{16}$–$\frac{1}{8}$; of the dried salt, gr. $\frac{1}{24}$–$\frac{1}{12}$.

Liquor Sodii Arsenatis, *Solution of Sodium Arsenate, Pearson's Solution,*—is a 1 per cent. solution of the dried Arsenate in Distilled Water. Dose, ♏ij–xv, in water after meals.

Arseni Iodidum, *Arsenic Iodide,* AsI_3,—occurs in glossy, orange-red crystalline masses or scales, gradually losing iodine by exposure to the air, soluble in 7 of water and in 30 of alcohol at 59° F.; is gradually decomposed by boiling water and by boiling alcohol, and is completely volatilized by heat. Dose, gr. $\frac{1}{20}$–$\frac{1}{8}$.

Liquor Arseni et Hydrargyri Iodidi, *Solution of Arsenic and Mercuric Iodide, Donovan's Solution,*—has Arsenic Iodide and Mercuric Iodide, of each 1 part in 100 of Distilled Water. Dose, ♏ij–viij, in water after meals.

Unofficial Arsenic Compounds.

Cupri Arsenis, *Cupric Arsenite*,—occurs in the various cupro-arsenical pigments used for wall-paper coloring and as insect-poison, viz.—Scheele's green, Mineral green, Paris green, etc. Is highly poisonous. Dose, gr. $\frac{1}{100}$ daily, in divided doses.

Liquor Arseni Bromidi, *Solution of Arsenic Bromide, Clemens' Solution*,—so named by Dr. Clemens, who described it as a chemical union of Arsenic and Bromine, but the action of Bromine on Arsenous Acid results in the formation of Arsenic Acid and Hydrobromic Acid, and the preparation is rather a Liquor Potassii Arsenatis et Bromidi. It contains Arsenic equal to 1 per cent. of Arsenous Acid. Dose, ♏ j-v, thrice daily in water after meals.

Liquor Arseni et Auri Bromidi, *Solution of Arsenic and Gold Bromide*,—contains gr. $\frac{1}{32}$ of each salt in ♏ x. It is known by the trade-name "*Arsenauro*", and is highly recommended by Dr. Barclay in the scleroses, diabetes, epilepsy, etc. Dose, ♏ v–xv, in water, after each meal.

PHYSIOLOGICAL ACTION.

Arsenous Acid, when applied to the skin denuded of its epidermis, acts as a painful escharotic, producing violent inflammation and resulting in a slough which forms a barrier to its absorption. If applied in dilute solution over a large surface, it will be absorbed, and may produce the systemic effects to be described.

In small doses it is a stomachic and general tonic, promoting the appetite and digestion, increasing the cardiac action, the respiratory power, and the intestinal secretions,—stimulating peristalsis, exalting mental activity and the sexual appetite, and producing a fair skin and a rotund form. When tolerance of the drug is established, large doses are used with impunity, as by the arsenic-eaters of Styria, who can swallow at once as much as 5 grains with safety. They are careful, however, not to take any water into the stomach at the same time, so that the dose is slowly absorbed, and probably eliminated rapidly. Not all those who begin its use can acquire tolerance of it, but those who do so seem to continue it without injury, and live to an old age, undergoing great exertion without exhaustion, and being enabled to ascend steep mountains without difficulty of respiration.

In full medicinal doses, continued for some time, it causes itching and œdema of the eyelids, ptyalism, nausea and vomiting, diarrhœa or dysentery, epigastric pain and soreness, feeble and irritable heart, dyspnœa, disordered sensibility, herpes zoster, urticaria, eczema and other skin eruptions, jaundice and albuminuria.

In large doses, it is a powerful irritant to the gastro-intestinal and bronchial mucous membranes. *Toxic doses* may produce either symptoms of gastro-enteritis, or those of profoundly narcotic character. In the first and most usual form of acute arsenical poisoning, there is burning pain in the throat and stomach extending over the abdomen, vomiting, thirst, bloody stools, strangury, suppressed, albuminous or bloody urine, rapid and feeble heart, great anxiety, cold breath, finally exhaustion and collapse,—a group of symptoms much resembling cholera. Autopsy shows erosions, ecchymoses, and softening of the gastro-intestinal mucous membrane, congestion of the lungs and bronchi, and fatty degeneration of the liver, kidneys and cardiac muscle. The poison is found in the urine, saliva, tears, sweat, etc., and may be detected even in the parenchymatous tissues. In the nervous form of poisoning by Arsenic, profound coma and insensibility come on suddenly without any gastro-intestinal symptoms.

Arsenical preparations are generally classed as alteratives, but they are valuable tonics and antiseptics, and possess antiperiodic powers second only to those of Quinine.

Chronic Arsenical Poisoning may occur from the inhalation of arsenical vapors or dust arising from wall-papers or other substances containing the poison. The quantity necessary to produce symptoms of poisoning when inhaled seems to be very small. The most prominent symptoms are, at first increased appetite, next colicky pains, mucous or dysenteric stools, irritation of the eyes, coryza, a short, dry cough, and a white and silvery tongue, all accompanied by great bodily prostration.

The long-continued use of arsenic may induce peripheral neuritis, the chief symptoms of which when so caused are—severe darting pains in the limbs, paralysis of the muscles of the extremities, especially the extensors of the hands and feet, ataxic gait, herpes zoster, and rapid muscular atrophy. In several cases it has caused general brown pigmentation of the skin, and may give rise to brown pigmentation of psoriasis patches. After death from chronic poisoning, in addition to the gastro-intestinal and nervous lesions, there is found wide-spread fatty degeneration, affecting most of the organs, but particularly the liver, kidneys, stomach and muscles, including the heart.

To avoid arsenical poisoning during a course of the drug, full doses (♏ x of Fowler's Solution) should be used at the commencement, and always taken on a full stomach. The dose should then be steadily reduced. Susceptible persons often tolerate it better if a few drops of Tinctura Opii are administered with each dose.

Antidotes and Incompatibles.

Poisoning by Arsenic is treated by prompt evacuation of the stomach, and washing it by means of the stomach pump, then Magnesia, Chalk and Lime-water freely, or better still, the chemical antidote to Arsenic in solution, viz., the *Hydrated Oxide of Iron*, freshly precipitated and in a soft magma, in the proportion of gr. viij for each grain of the poison ingested. (See FERRI OXIDUM HYDRATUM for the preparation of this antidote.) Oil or mucilaginous drinks should be given to protect the mucous membranes, and diluents, alkaline mineral waters or Iodide of Potassium to promote elimination. *Dialyzed Iron* has been shown to be quite efficient as an antidote, and is more easily obtained than the hydrated oxide. It has rendered good service in many cases of poisoning from inhalation of arsenical fumes.

Incompatibles are salts of Iron, Magnesium and Calcium, also Astringents.

THERAPEUTICS.

Externally, Arsenic has been employed in the form of paste as a depilatory, and as an escharotic in cancers, but is excessively painful. Most of the secret "cancer cures" have arsenous acid for their basis. Internally, it is used as a tonic and astringent to the intestinal canal, as a tonic and antispasmodic in nervous diseases, and for its action on tissue change. It is of especial value in irritative dyspepsia, gastralgia, pyrosis, gastric ulcer or cancer, regurgitation of food without nausea, diarrhœa coming on immediately after taking food, vomiting of drunkards and chronic alcoholism. It has proven of signal service in the commencement of phthisis, and in catarrhal pneumonia, probably by causing fatty degeneration of the exudation in the alveolar cavities, thus breaking it up and quickening its absorption. It is often very serviceable in chronic bronchitis with copious expectoration, in acute catarrh, hay-fever, whooping-cough, asthma, chorea, epilepsy, angina pectoris and other spasmodic nervous disorders. In many forms of neuralgia it often gives prompt and permanent relief, especially in cases due to malarial poisoning. As an antiperiodic, it has high rank, being, however, of particular value in chronic malarial poisoning, and as an adjunct to Quinine in the intervals between the paroxysms of intermittents. Anæmia and chlorosis are remarkably benefited by it, and in rheumatic arthritis and chronic rheumatism it is sometimes of great service. In chronic scaly and papular skin diseases its value is very great, but it is not serviceable in acute forms, and the more chronic the cutaneous affection the more likely is it to be amenable to Arsenic. Epithelioma may be retarded by small doses long continued, and it has certainly been useful in delaying the progress of other cancers, particularly scirrhus of the stomach and uterine carcinoma. Hypodermically its solutions have been extremely efficient in histrionic spasm, local chorea of the head and neck, obstinate cases of general chorea, and in lymphadenoma.

The so-called Bromide of Arsenic, in the form of Clemens' Solution, has rendered good service as a remedy for diabetes mellitus of hepatic origin. Cupric Arsenite is being highly recommended in typhoid fever.

ASAFŒTIDA, Asafetida,—a gum-resin obtained by incision from the living root of *Ferula fœtida*, a perennial herb of the nat. ord. Umbelliferæ, native of Persia and Afghanistan. It occurs in whitish tears embedded in a grayish sticky mass, of alliaceous odor and taste, soluble in alcohol to at least 60 per cent., and triturated with water it yields a milk-white emulsion. Its principal constituent is a *Sulphuretted Volatile Oil*, consisting chiefly of Allyl Sulphide, $C_6H_{10}S$; it also contains a gum and a resin, with ferulaic, malic, acetic, formic and valerianic acids. Dose, gr. v–xx.

Preparations.

Tinctura Asafœtidæ, *Tincture of Asafetida*,—strength 20 per cent. Dose, ʒ ss–ij.

Emulsum Asafœtidæ, *Emulsion of Asafetida*, *Milk of Asafetida*,—strength 4 per cent. in water. Dose, ℥ ss–ij.

Pilulæ Asafœtidæ, *Pills of Asafetida,*—each pill has gr. iij with gr. j of Soap. Dose, j–iv pills.

Pilulæ Aloes et Asafœtidæ, *Pills of Aloes and Asafetida,*—each pill has gr. 1⅓ of each ingredient with the same of Soap. Dose, j–iv pills.

Mistura Magnesiæ et Asafœtidæ, *Mixture of Magnesia and Asafetida, Dewees' Carminative* (Unofficial), has of Magnesium Carbonate 5, Tinct. Asaf. 7, Tinct. Opii 1, Sugar 10, Aqua Dest. q. s. ad 100 parts. Dose, ʒ ss–℥ ss.

Spiritus Ammoniæ Fœtidus (Unofficial),—Asafetida 1½, Liquor Ammoniæ Fortior 2, Spirit 20 parts. Dose, ʒ ss–j.

PHYSIOLOGICAL ACTION.

Asafetida is a powerful antispasmodic, a stimulant to the brain and nervous system, a stimulating expectorant, also tonic, laxative, diuretic, diaphoretic, emmenagogue, aphrodisiac and anthelmintic in action. Its odor and taste are extremely nauseous and persistent.

In small doses continued it is said to cause impaired digestion, alliaceous eructations, acrid sensation in the fauces, gastralgia, flatulent distention, fetid flatulence, burning urination, diarrhœa and tenesmus. Full doses produce various nervous or hysterical phenomena, with nausea, vomiting and purging.

The Volatile Oil diffuses into the blood and tissues, and is excreted in the urine, sweat, breath, etc. By its action the circulation is stimulated, the arterial tension raised, the power of the cardiac motor ganglia is increased and the inhibition relaxed. Asafetida also stimulates the brain even to pleasant intoxication, and produces a subjective sensation of warmth without any rise of body temperature. It stimulates the nervous system, the secretions and excretions, the menstrual flow and the sexual appetite. In Asia it is used as a condiment with food, and though at first it is extremely nauseous to most people, a taste for it may be readily acquired.

THERAPEUTICS.

The disgust which is generally felt for this remedy makes its use very restricted, though a valuable medicine. The Emulsion is extremely serviceable in the flatulent colic of infants, and as an enema in infantile convulsions. There is no better remedy in hysteria and hypochondriasis with indigestion and flatulence,—in constipation with amenorrhœa of anæmic subjects, due to ovarian and intestinal torpor,—in bronchial affections, cough of habit, chronic catarrhs, and flatulent indigestion. It has recently been highly praised in the treatment of habitual abortion.

ASCLEPIAS, Pleurisy Root,—is the root of *Asclepias tuberosa*, a plant of the nat. ord. Asclepiadaceæ and a native of the Eastern and Southern States. Two other species of Asclepias are used in medicine and were formerly official.

Extractum Asclepiadis Fluidum, *Fluid Extract of Asclepias,*—Dose, ʒ ss–j.

An Infusion or Decoction may be made in the proportion of ℥ j of the powdered root to a quart of water, and given in teacupful doses every 2 or 3 hours.

Asclepias contains two resins, a peculiar principle, tannic and gallic acids, albumen, pectin, gum, various salts and a volatile, odorous, fatty matter. It is emetic and cathartic in full doses, also diaphoretic and expectorant, as well as depressant to the action of the heart, and probably slightly sedative and astringent. It is a popular remedy in the Southern States for pleurisy (hence its common name), and has been used in medicine for catarrh, pneumonia, phthisis, diarrhœa, dysentery, rheumatism, gastralgia, and to promote the eruption in exanthematous fevers. It is undoubtedly a powerful diaphoretic.

ASPIDIUM,—is the rhizome of *Dryopteris Filix-mas* (Male Fern) and of *Dryopteris marginalis* (Marginal Shield Fern), plants of the nat. ord. Filices, the former found in most parts of the world, the latter indigenous to N. America. It is 3 to 6 inches long, thick, scaly, having fibro-vascular bundles within, arranged in an interrupted circle; odor slight but disagreeable, taste sweetish and bitter, astringent and nauseous. The above principle is *Filicic Acid*, $C_{14}H_{18}O_5$, which is extracted in the oleoresin. It also contains a green, fatty oil, a volatile oil, resin, tannin, etc. Dose, ʒss–ʒjss in a single dose fasting, or in divided doses at short intervals, followed by a purgative.

Oleoresina Aspidii, *Oleoresin of Aspidium*,—is an ethereal extract and deposits Filicic Acid on standing. It should be well shaken before being used. Dose, ʒss–ʒj, in capsules, repeated every 3 hours for 2 or 3 doses.

Aspidium is an efficient vermicide against tapeworm, particularly the unarmed variety (Bothriocephalus latus). The oleoresin is the best form in which to use it, the patient having fasted for the previous day, or only used a milk diet, ʒj may then be given in 4 doses ¼ hour apart. This may be repeated the next morning and followed by three drops of croton oil in emulsion. This is one of many methods. Cusso may be combined with it advantageously. A formula for a mixed treatment by Aspidium, Pomegranate and Pumpkin-seed is given under the title GRANATUM.

ASPIDOSPERMA, Aspidosperma, *Quebracho*,—is the bark of *Aspidosperma Quebracho-blanco*, a large evergreen tree of the nat. ord. Apocynaceæ, growing in Chili and the Argentine Republic. The name is one given in S. America to any very hard wood (*quèbrar hacho*, to break the axe), and the particular tree above named is known as *Quebracho-blanco*, from the white color of its wood. It contains several alkaloids, no one of which represents the action of the bark itself; the most important being *Aspidospermine*, $C_{22}H_{30}N_2O_2$, and *Quebrachine*, $C_{21}H_{26}N_2O_3$. Several false Quebrachos are found on the market, that most frequently seen being the bark of *Loxopterygium Lorentzii*, or *Quebracho colorado*, an Argentine tree of the order Terebinthaceæ.

Preparations.

Extractum Aspidospermatis Fluidum, *Fluid Extract of Aspidosperma*,—is the only official preparation. Dose, ♏v–ʒj.

Tinctura Quebracho, *Tincture of Quebracho* (Unofficial),—strength 20 per cent. Dose, ʒj–iv.

Vinum Quebracho, *Wine of Quebracho* (Unofficial). Dose, ʒj–℥j.

Extractum Quebracho, *Extract of Quebracho* (Unofficial). Dose, gr. ij to x.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Aspidosperma is a bitter tonic of disagreeable taste, promoting appetite and increasing digestion. It lowers the action of the heart, reduces arterial tension, and slows respiration, also decreasing the sensation of need of air after active exercise. In large doses it causes severe salivation, nausea, vomiting, vertigo and headache. In animals it paralyzes the motor nervous system and lowers the reflexes, producing great dyspnœa and finally death, apparently from asphyxia.

This drug has long been used in Chili as an antiperiodic, a stomachic tonic, and a remedy for dyspnœa. In the latter condition it is reported to be remarkably palliative, especially when due to emphysema, uræmic and spasmodic asthma, spasmodic cough and chronic bronchitis. It is not efficient in dyspnœa from organic diseases of the heart, nor in that of aged subjects of atheroma.

ASPIDOSPERMINE is actively poisonous to the respiratory apparatus and circulation in both cold- and warm-blooded animals, in the former the respiration being chiefly affected, in the latter the motor ganglia of the heart. Lowered temperature, dyspnœa, stupor and convulsions occur before death. It has been used as an antipyretic, also in cardiac neuroses and in asthma. Its salts are freely soluble in water, but the alkaloid itself is only soluble in oils and fats, 6 to 8 parts being readily incorporated with 100 of cod-liver oil by the aid of heat. The average dose is gr. j–ij.

AURANTIUM, Orange,—occurs in two official varieties of fruit and flowers, viz., those of *Citrus vulgaris*, the Bitter Orange, and *Citrus Aurantium*, the Sweet or Portugal Orange, both trees of the nat. ord. Aurantiaceæ, cultivated in almost all warm climates. Other varieties are described under LIMON. The official titles are—

Aurantii Amari Cortex, *Bitter Orange Peel*,—the rind of the fruit of *Citrus vulgaris*, characteristics well known. Contains a Volatile Oil isomeric with Oil of Turpentine, $C_{10}H_{16}$, and a bitter, crystalline principle, *Hesperidin* or *Aurantiin*.

Aurantii Dulcis Cortex, *Sweet Orange Peel*,—is the rind of the fresh fruit of *Citrus Aurantium*. It contains a Volatile Oil differing from that of the bitter orange, and less of the bitter principle.

Preparations.

Extractum Aurantii Amari Fluidum, *Fluid Extract of Bitter Orange Peel.*—Used as flavoring. Dose, ʒss–j.

Tinctura Aurantii Amari, *Tincture of Bitter Orange Peel,*—strength 20 per cent. Dose, ʒj–ij. A flavoring preparation.

Tinctura Aurantii Dulcis, *Tincture of Sweet Orange Peel,*—strength 20 per cent. Dose, ʒj–ij. A flavoring preparation.

Syrupus Aurantii, *Syrup of Orange,*—Sweet Orange Peel 5, Calcium Phosphate Precip. 5, Sugar 70, Alcohol and Water to 100. Dose, ʒj–ij. Used for flavoring.

Syrupus Aurantii Florum, *Syrup of Orange Flowers,*—Sugar 85, Orange-flower Water to 100. Dose, ʒ j–ij. A delicate flavoring agent, but having to some persons an extremely sickish taste.

Spiritus Aurantii, *Spirit of Orange,*—Oil of Orange Peel 5, Deodorized Alcohol 95. Dose, to be regulated by the quantity of alcohol desired.

Spiritus Aurantii Compositus, *Compound Spirit of Orange,*—Oil of Orange Peel 20, Oil of Lemon 5, Oil of Coriander 2, Oil of Anise ½, Deodorized Alcohol to 100. Dose, as for alcohol.

Aqua Aurantii Florum Fortior, *Stronger Orange-flower Water,*—is water saturated with the volatile oil of fresh orange flowers. Dose, indefinite, for flavoring. Used to prepare—

Aqua Aurantii Florum, *Orange-flower Water,*—consists of equal volumes of the preceding and Distilled Water, mixed immediately before use. Dose, indefinite.

Oleum Aurantii Corticis, *Oil of Orange Peel,*—a volatile oil, obtained by expression from the fresh peel of either orange. Is soluble in about 4 times its volume of alcohol, and is an ingredient of the two official Spirits of Orange and also of Spiritus Myrciæ (Bay Rum). Dose, gtt. j–v.

Oleum Aurantii Florum, *Oil of Orange-flowers, Oil of Neroli,*—a volatile oil, distilled from the fresh flowers of the bitter orange. Is the most important constituent of Cologne Water (Spiritus Odoratus), and is soluble in an equal volume of Alcohol. Dose, gtt. j–v.

Elixir Aromaticum, *Aromatic Elixir* (*Simple Elixir*),—has of the Comp. Spt of Orange 1.2, Precipitated Calcium Phosphate 1½, Syrup 37½, Deodorized Alcohol and Distilled Water to 100. A flavoring vehicle. Dose, ʒj–℥j, or more.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Orange is aromatic and tonic, also more or less bitter, but has little action except a mild stimulant influence on the nervous system due to its volatile oil. Persons much exposed to its fumes are liable to cutaneous eruptions and various nervous disorders. The oil may produce violent colic and convulsions in children, one case being reported in which death resulted from eating the rind. Its use in medicine is confined to flavoring purposes, though the preparations of the Bitter Orange may be used as gentle tonics and stimulants to the digestion, but they are usually combined with more energetic agents for these purposes.

AURUM, Gold, Au,—is represented by but one official preparation, viz. Gold and Sodium Chloride. The Chloride is found in the shops, being much used by photographers; and triturations of the metal itself may be prepared according to the general formula for such preparations.

Preparations.

Auri et Sodii Chloridum, *Gold and Sodium Chloride,*—is a mixture composed of equal parts of dry Gold Chloride and Sodium Chloride, $AuCl_3 + NaCl$. An orange-colored powder, soluble in water. Dose, gr. $\frac{1}{30}$–$\frac{1}{10}$.

Auri Chloridum, *Gold Chloride* (Unofficial),—occurs in needle shaped prisms, of an orange-yellow color, deliquescent, freely soluble in water. Dose, gr. $\frac{1}{50}$–$\frac{1}{30}$. Is best given in solution.

PHYSIOLOGICAL ACTION.

Locally used the Chloride is escharotic; administered internally its action closely resembles that of Mercuric Chloride. In small doses, it promotes appetite and digestion, and stimulates the functions of the brain, producing marked mental exhilaration and a general sense of well-being. Continued, it produces aphrodisiac effects in both sexes, and in women increases the menstrual discharge. Full doses cause nausea and vomiting, glandular irritation, salivation without loosening of the teeth or sore gums, increased urinary discharge, sweat and fever (the auric fever); nutrition is impaired and rapid waste set up. A toxic dose produces effects similar to those from Corrosive Sublimate, namely, violent gastro-enteritis, mental disturbance, priapism, tremor, convulsions and paralysis.

Antagonists.

Poisoning is treated by *Albumen* (eggs or flour), and evacuation of the stomach—just as in the case of Corrosive Sublimate.

THERAPEUTICS.

The Chloride is a useful remedy in irritative dyspepsia, gastro-duodenal catarrh, hypochondriasis, amenorrhœa, functional impotence, chronic metritis, habitual abortion, ovarian dropsy, vertigo and vertiginous sensations from disordered stomach. It is especially recommended in chronic albuminuria, hepatic sclerosis, granular and fibroid kidney, as it prevents hyperplasia of connective tissue. In syphilis its utility is proven beyond doubt, particularly in the tertiary manifestations and syphiloma of the bones, in which it is fully as efficacious as Mercuric Chloride, with much less inconvenience to the patient.

AVENA SATIVA,—the common Oat, a plant of the nat. ord. Graminaceæ,—was official in the U. S. P. 1870, as *Avenæ Farina*, or Oat-meal. A concentrated tincture or fluid extract has been extensively advertised by drug manufacturers as a nerve stimulant and tonic, especially efficacious in the treatment of chorea, epilepsy, insomnia, nervous exhaustion, alcoholism and the Opium-habit. The seeds contain starch, gluten, gum, etc., and form a nutritious food, the meal being made into a porridge, or gruel. In the latter form it is a good demulcent for coughs. The pericarp contains an amorphous alkaloid, which has doubtless some stimulant and narcotic power; but the claims advanced for it, as a specific remedy for the cure of the opium-habit, have been strenuously denied by many competent observers. Dose of the concentrated tincture or fluid extract may be stated at ♏x–ʒij.

AZEDARACH (Unofficial),—is the bark of the root of *Melia Azedarach*, or Pride of China, a handsome tree of the nat. ord. Meliaceæ, indigenous to China and India, but naturalized in the Gulf States. It occurs in curved pieces or quills, which are almost inodorous and have a sweetish taste, afterwards becoming bitter and nauseous. A decoction of the fresh bark (℥ij to Oj boiled to O½) may be used in tablespoonful doses.

This drug is known to produce symptoms of narcotic poisoning, as giddiness, dimness of sight, mental confusion, stertorous breathing, dilated pupils and stupor. Large doses are necessary to cause these effects, and some authorities question their occurrence. It is, however, a gastro-intestinal irritant, producing vomiting and purging, and also an anthelmintic against the round-worm. Its active principle has not been isolated. It is only employed as an anthelmintic against lumbricoid worms, and as the fresh bark is difficult to obtain in any region where it does not grow, other agents will be more generally used. It is given to horses affected with "bots."

BALSAMUM PERUVIANUM, Balsam of Peru,—is a balsam obtained from *Toluifera Pereiræ*, a Central American tree, of the nat. ord. Leguminosæ. Occurs as a thick, brown-black liquid, its odor reminding of benzoin and vanilla, soluble in 5 of alcohol, almost insoluble in water, which only extracts from it some Cinnamic Acid and Cinnamein. It is not a true balsam, as it contains no volatile oil. Composition is,—*Cinnamein* (Benzyl Cinnamate, $C_{16}H_{14}O_2$) 60 per cent., *Cinnamic Acid* 6 per cent., *Resins* 30 per cent.; also Benzoic Acid and other bodies. Dose ♏ x–xxv, in emulsion. There are no official preparations.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The action of Balsam of Peru is that of its several constituents, namely, antiseptic, disinfectant, stimulant to the circulation, and sedative to the nervous system; acting chiefly on the mucous membrane, it is tonic and expectorant, diuretic and diaphoretic. In large doses, it causes gastralgia, nausea and vomiting, colic and diarrhœa. It closely resembles in physiological action its congeners, Styrax and Benzoin.

Balsam of Peru is used locally in chronic skin diseases of inflammatory type and sore nipples, to relieve itching, cleanse bed-sores, promote the healing of wounds and ulcers, and to kill the acarus scabiei, being considered by some authorities the best of all applications in itch. Internally, it is used as a stimulant and disinfectant expectorant in chronic bronchitis, asthma, etc., as well as in gonorrhœa, gleet, leucorrhœa, and other discharges from mucous membranes. Incorporated with Iodoform it partially covers the odor of that drug.

BALSAMUM TOLUTANUM, Balsam of Tolu,—is a balsam obtained from *Toluifera Balsamum*, a tree of the nat. ord. Leguminosæ, native in Venezuela and New Granada. Its composition and properties are similar to those of Balsamum Peruvianum, except that it is of lighter color, more agreeable odor, and contains a volatile oil, *Tolene*, in the proportion of about 1 per cent.

Tinctura Tolutana, *Tincture of Tolu*,—contains 10 per cent. of the Balsam dissolved in alcohol. Dose, ♏ x–xxx.

Syrupus Tolutanus, *Syrup of Tolu*,—has of the Balsam 1 per cent., with Sugar 85, in Alcohol 5, and Water to 100. Is much used in cough mixtures, and covers the taste of Chloral Hydrate well. Dose, ʒj–ij.

Balsam of Tolu has similar action to that of Balsam of Peru, but being more agreeable in flavor it is used internally more than the latter. It is chiefly employed as a pleasant excipient in cough mixtures, and is a constituent of the Compound Tincture of Benzoin.

BAPTISIA, Wild Indigo (Unofficial),—is the root bark of *Baptisia tinctoria*, a plant of the nat. ord. Leguminosæ, native in North

America, and contains an alkaloid and a resin, neither of which have been examined critically. The so-called *Baptisin* is an impure resinoid, obtained by precipitation from the alcoholic extract with water.

Preparations.

Extractum Baptisiæ, *Extract of Baptisia* (Unofficial).—Dose, gr. j-x.
Extractum Baptisiæ Fluidum, *Fluid Extract of Baptisia* (Unofficial). Dose, ♏︎ij-xx.
Tinctura Baptisiæ, *Tincture of Baptisia* (Unofficial). Dose, ♏︎v-xxx.
Baptisin (Unofficial),—the resinoid. Dose, gr. j-v.

Baptisia has a bitter and acrid taste; in small doses it is laxative, in large ones violently emeto-cathartic, and may excite severe gastro-intestinal inflammation. It is a decided stimulant of the liver, and increases the secretions of the glandular appendages of the gastro-intestinal mucous membrane. It has considerable power as an antiseptic.

Baptisia has been used locally in decoction or cataplasm to obstinate and painful ulcers, in threatened or existing gangrene, and gangrenous sores. Internally, it is a useful remedy in amenorrhœa, typhoid and typhus fevers, variola, scarlatina, and epidemic dysentery. In the common continued-fever, or in the first stage of typhoid, it will be found of great service in drop-doses of a fresh tincture, repeated every hour.

BARII DIOXIDUM, Barium Dioxide, *Barium Peroxide*, BaO_2—is the commercial, anhydrous Barium Dioxide, a heavy, grayish-white, amorphous powder, odorless and tasteless: gradually decomposed by exposure to the air, from which it slowly attracts moisture and carbon dioxide. Used to prepare the Aqua Hydrogenii Dioxidi (Solution of Hydrogen Peroxide).

Though almost insoluble in cold water, Barium Dioxide forms therewith a definite hydrate, and imparts thereto an alkaline reaction. It is decomposed by most of the mineral acids, producing the corresponding barium salts, and liberating Hydrogen Dioxide, H_2O_2, which remains in the solution for a considerable length of time, if the reaction has taken place in the cold, and if an excess of the acid is present. In this way is prepared the official Aqua Hydrogenii Dioxidi (Solution of Hydrogen Peroxide), for which see the title HYDROGENII DIOXIDUM.

BELLADONNA, Deadly Nightshade.—The *Atropa Belladonna* is an herbaceous, perennial plant, of the nat. ord. Solanaceæ, having dark-purple, bell-shaped flowers, and glossy, purplish-black berries about the size of cherries. It is indigenous in the mountainous districts of Central and Southern Europe and Asia, and is cultivated in Europe and in the United States. It contains two alkaloids,—the official *Atropine* (see below), and *Belladonnine*, the latter being considered by many authorities as identical with Hyoscyamine, Daturine, and Duboisine. These exist in the plant in combination with *Malic Acid.* The plant also contains the usual vegetable constituents, as albumen, gums, etc., and a coloring principle named *Atrosin.*

The official titles are as follows:—

Belladonnæ Folia, *Belladonna Leaves,*—ovate and tapering, brownish green above, grayish-green below, of slight odor and bitter, disagreeable taste. Stramonium leaves are more wrinkled, Hyoscyamus leaves are more hairy. Dose, gr. j, gradually increased.

Belladonnæ Radix, *Belladonna Root,* — cylindrical, tapering, wrinkled pieces, ½ to 1 inch thick, nearly odorless, taste bitter and acrid. Dose, gr. j, cautiously increased.

Preparations of the Leaves.

Extractum Belladonnæ Foliorum Alcoholicum, *Alcoholic Extract of Belladonna Leaves.*—Dose, gr. $\frac{1}{10}$ to $\frac{1}{2}$.

Tinctura Belladonnæ Foliorum, *Tincture of Belladonna Leaves,*—15 per cent. Dose, ♏ j–xxx.

Emplastrum Belladonnæ, *Belladonna Plaster,*—has of the above extract 20 per cent., mixed with Resin and Soap Plasters, of each 40 per cent. May produce the physiological action of the drug.

Unguentum Belladonnæ, *Belladonna Ointment,*—has of the above extract 10, Diluted Alcohol 5, Benzoinated Lard 85.

Preparations of the Root.

Extractum Belladonnæ Radicis Fluidum, *Fluid Extract of Belladonna Root.*—Dose, ♏ j–v.

Linimentum Belladonnæ, *Belladonna Liniment,*—has of Camphor 5, dissolved in Fluid Extract of Belladonna Root to 100.

Atropine and its Derivatives.

Atropina, *Atropine,* $C_{17}H_{23}NO_3$,—in white, acicular crystals, odorless, of bitter taste and alkaline reaction; very soluble in alcohol and in chloroform, also in 130 of water at 59° F. Is decomposed by prolonged contact with caustic alkalies and is resolvable into *Tropin* and *Tropic Acid.*

Atropinæ Sulphas, *Atropine Sulphate,* $(C_{17}H_{23}NO_3)_2H_2SO_4$,—a white powder of bitter taste and neutral reaction, soluble in 0.4 of water and in 6.2 of alcohol at 59° F. Dose, gr. $\frac{1}{120}$–$\frac{1}{60}$.

Homatropina, *Homatropine,* $C_{16}H_{21}NO_3$ (Unofficial),—is a derivative alkaloid obtained by the action of dilute HCl on Amygdalate of Tropin. The Hydrobromate is used by ophthalmologists as a mydriatic, its effects passing off much sooner than those of Atropine. Homatropine slows the heart, Atropine quickening it.

Tropeius (Unofficial),—is a result of the action of a mineral acid on Tropin.

PHYSIOLOGICAL ACTION.

BELLADONNA is an irritant narcotic, a mydriatic, an antispasmodic and an anodyne; in small doses a cardiac, respiratory and spinal stimulant—in large doses a paralyzer of the cardiac and respiratory centres, the spinal cord, the motor nerves and involuntary muscles. It produces congestion and dryness of the mucous membrane of the throat, mouth, nose and larynx, and at first lessens the gastric and intestinal secretions, but soon reproduces these in large quantity. The heart rate is at first slowed, but soon becomes very rapid and vigorous, the pulse being doubled in rapidity; the arterial tension being at the same time raised, the circulation is greatly increased. This is accomplished by stimulation of the cardiac sympathetic, and paralysis of the pneumogastric, thus stimulating the accelerator apparatus while lessening the inhibitory. [Digitalis increases both.] The vasomotor ganglia are stimulated all over the body, but are afterwards paralyzed by over-stimulation, the heart weakens, the vessels relax, and the blood-pressure becomes greatly reduced. Complete motor-paralysis follows, delirium, stupor, and finally death, which usually occurs by asphyxia.

The pupils are dilated by either the local or systemic use of the drug, it stimulating the end-organs of the sympathetic and paralyzing those of the motor oculi, thus increasing the power of the radiating iris fibres and lessening the action of its circular ones. Atropine locally also paralyzes accommodation and increases the intraocular pressure. The least quantity of Atropine which will affect the pupil is stated at gr. $\frac{1}{10000}$ (Wood), gr. $\frac{1}{20000}$ (Roosa), gr. $\frac{1}{40000}$ (Ely), gr. $\frac{1}{128600}$ (Trousseau), gr. $\frac{1}{160000}$ (Loring), gr. $\frac{1}{700000}$ (Donders).

The brain is congested by Belladonna, headache, vertigo, busy delirium, hallucinations, etc., being produced, the latter from a selective action on the cells of the gray matter. The spinal cord is stimulated from the 3d cervical vertebra to the 10th dorsal, resulting in complete motor paralysis, central and peripheral, power being lost first in the lower extremities. Sensation is also impaired somewhat, but the muscular irritability is not. Respiration is increased and the body temperature elevated. Metamorphosis is greatly promoted by the increased activity of the circulation.

A diffused eruption of scarlet color, greatly resembling the eruption of scarlet fever, is often produced on the skin and fauces by Belladonna, with dysphagia and sore throat, and is sometimes followed by desquamation of the epidermis. It is due to capillary congestion caused by the greatly increased circulation.

Belladonna is rapidly diffused and quickly eliminated, particularly by the kidneys. The urine of an animal under the action of the drug will dilate the pupil of another animal. Herbivorous animals and birds are scarcely susceptible to it, and pigeons are not affected by it at all.

ATROPINE has the same actions as above described, being the active principle of the plant. BELLADONNINE was long supposed to be inert, but has recently been shown to be identical with Hyoscyamine. It is a mydriatic when given internally, but not when used locally.

Antagonists and Incompatibles.

Opium is the physiological antagonist to the effects of Belladonna on the cerebrum, pupil, heart, respiration, arterial tension and kidneys. *Physostigmine*, Aconite, Pilocarpine and Quinine are each antagonistic to some of its effects, *Muscarine*, to most of them. In poisoning by this drug, Tannic Acid and emetics should be used, then *Morphine*, Physostigmine or Pilocarpine for the nervous disturbance. Caustic alkalies decompose Atropine and are therefore incompatible with the preparations of Belladonna.

THERAPEUTICS.

BELLADONNA is one of the most valuable drugs in the Materia Medica, ranking with Aconite, Arsenic and Opium in efficacy and wide range of use. It is especially useful in the pain of inflammation, particularly that of rheumatism, gout, neuralgia due to peripheral disturbance, sciatica, cancer and pelvic affections. In cerebral and spinal hyperæmia, congestive headaches, encephalitis, meningitis and myelitis it proves one of the very best remedies. In erysipelas of superficial and non-vesicular character and when cerebral, it is really curative locally and internally administered. Inflammations of the lungs, iris, bladder, kidneys and breasts are all amenable to it. In constipation from atony of the bowels it is remarkably efficient, and in the enuresis of children it is equally so if used freely, 10 to 20 drops of the tincture thrice daily. In recent cystitis from chill, spasm of the urethra, bladder, and sphincter ani, typhus and typhoid fevers, acute nasal catarrh, sore throat with fever, inflammation, and swollen tonsils, many skin diseases, asthma and whooping-cough epileptic and puerperal convulsions, spermatorrhœa and seminal losses, Belladonna is often a highly useful agent. Its local application is efficiently used in ulcers of the rectum, anal fissure, abscesses, boils, carbuncles, and other superficial inflammations. In scarlet fever it relieves many of the symptoms, and is especially indicated in this disease when the rash is imperfect, the pulse feeble and the condition one of adynamia. Its prophylactic power against scarlet fever is believed in by many of our best practitioners, though questioned by many others.

ATROPINE is used in poisoning by Opium, Physostigma, and Hydrocyanic Acid; in ptyalism from mercury, pregnancy, etc.; in the sweats of phthisis, in sudden cardiac failure, and by eye-surgeons to paralyze accommodation, dilate the pupil, contract the vessels, lessen pain, and diminish (?) intra-ocular tension. In opium-poisoning it should be given in very small doses, and repeated for effect, as most of the unsuccessful cases of its use in this connection were due to overdosing with the antagonist, superinducing belladonna-narcosis upon the opium-narcosis. In cases of heart-failure from Chloroform or Ether inhalation, the hypodermic injection of Atropine has, in the writer's hands, saved several lives when all other methods of resuscitation had failed. It is highly efficient in lead poisoning, if used in combination with Potassium Iodide; and has given the most satisfactory results as a hæmostatic in profuse metrorrhagia after abortion, in metrorrhagia of obscure origin, and in phthisical hæmoptysis.

BENZINUM, Benzin, *Petroleum Ether*,—is a purified distillate from American petroleum, consisting of hydrocarbons, chiefly of the marsh-gas series, (C_5H_{12}, C_6H_{14}, and homologous compounds). It is a transparent, colorless liquid, very diffusive, highly inflammable, insoluble in water, soluble in alcohol, ether, chloroform, benzol and fixed and volatile oils. Its sp. gr. is 0.670 to 0.675, and its boiling point 122° to 140° F. It should be carefully kept in well-stoppered bottles or tin cans, in a cool place, remote from lights or fire. Dose, gtt. v–x, on sugar or in mucilage.

Benzin is reported to have caused death in one case from gastro-enteritis, but ordinarily it does not produce vomiting or diarrhœa. It has been used with some success externally as a remedy for rheumatic pain, neuralgia, itch and prurigo; and internally as a vermicide against tapeworm. In pharmacy it has many uses on account of its power as a solvent for oils, fats, resins, caoutchouc and some alkaloids. In the household it is used as a solvent application for removing grease from clothing.

BENZOLUM, **Benzol**, *Benzene*, *Phenyl Hydride*, C_6H_6 (Unofficial),—is a constituent of coal-gas tar, obtained by distilling coal naphtha. It is a thin, colorless, oleaginous liquid, very inflammable, of agreeable odor, and sp. gr. 0.850. It is very diffusible, and the vapor, when inhaled, acts as an anæsthetic. Dose, gtt. v–x, on sugar, in emulsion or capsules, up to ʒ jss daily.

Benzol is a reliable pulmonary antiseptic, and has been used successfully in the treatment of whooping-cough, the vapor being diffused throughout the room, and proximity to a light or fire being carefully avoided. It has made quite a reputation in the treatment of influenza, and has been found effectual in destroying both head and body lice, for which purpose a single application is usually sufficient. It has also been given internally for the destruction of trichinæ, followed by a brisk laxative; and, mixed with lard, is used externally in parasitic skin diseases, especially scabies; also in rheumatism and neuralgia.

BENZOINUM, **Benzoin**,—is a balsamic resin obtained from *Styrax Benzoin*, a tree of the nat. ord. Styraceæ, native in Sumatra and Siam, by incision of its bark. It occurs in agglutinated tears or a brown, mottled mass, is soluble in alcohol and solution of potassa, and is composed of *Resins* 80 per cent., *Benzoic Acid* 10 to 20 per cent., and a trace of *Volatile Oil*. Some varieties of benzoin yield also *Cinnamic Acid*.

Preparations of Benzoin.

Adeps Benzoinatus, *Benzoinated Lard*,—has of Benzoin 2 parts in 100 parts of Lard.

Tinctura Benzoini, *Tincture of Benzoin*,—has of Benzoin 20 parts, Alcohol 100. Dose, ʒ ss–j.

Tinctura Benzoini Composita, *Compound Tincture of Benzoin*, *Friar's Balsam*,—has of Benzoin 12, Aloes 2, Styrax 8, Balsam of Tolu 4, Alcohol to 100. Dose, ʒ ss–ij.

Preparations of Benzoic Acid.

Acidum Benzoicum, *Benzoic Acid*, $HC_7H_5O_2$,—occurs in light, feathery plates and needles, and is obtained from Benzoin by sublimation, or prepared artificially, chiefly from Toluol. It is soluble in 500 of water, and in 2 of alcohol at 59° F., but its solubility in water is aided by Borax, one part of each being soluble in 100 parts. It is a constituent of Tinctura Opii Camphorata. Dose, gr. x–xxv, in wafers.

Ammonii Benzoas, *Ammonium Benzoate*,—is soluble in 5 parts of water and in 28 of alcohol. Dose, gr. v–xxx.

Lithii Benzoas, *Lithium Benzoate*,—soluble in 4 parts of water and in 12 of alcohol. Dose, gr. v–xxx.

Sodii Benzoas, *Sodium Benzoate*,—is efflorescent on exposure to air, soluble in about 2 parts of water and in 45 of alcohol. Dose, gr. v–ʒ j.

PHYSIOLOGICAL ACTION.

BENZOIN is decidedly antiseptic and disinfectant, and when used externally is somewhat stimulant to the vessels. Its action is due to its Benzoic Acid, which taken internally produces slight epigastric heat, increases the pulse-rate, and stimulates the action of the skin, the salivary glands, and of the bronchial mucous membrane. It is chiefly excreted by the kidneys, in part as hippuric acid by combination with glycocoll, and in part unchanged. It renders the urine acid and increases its quantity. Benzoin is irritant to the fauces, and the powder inhaled excites sneezing and coughing.

THERAPEUTICS.

Benzoin is principally used as a stimulant expectorant, especially in the chronic bronchitis of the aged, and by atomization in laryngeal affections. The compound tincture, ʒj to ℥j in a pint of boiling water, is a useful sedative inhalation for the irritation and cough of subacute laryngitis and tracheitis. It has also been used beneficially in chlorosis and some uterine disorders. The compound tincture is a good local application (1 to 4 of glycerin and water) for sore nipples and chaps of the hands and lips. For use as a cosmetic, either tincture is mixed with 20 parts of water, and employed to remove freckles and other skin affections, especially urticaria. They are excellent applications to foul-smelling wounds, and form the basis of all the proprietary preparations sold for that purpose.

Benzoic Acid and its salts are the only certain means we possess, by which to neutralize morbid alkalinity of the urine. In cystitis, with phosphatic deposits and alkaline urine, they are extremely valuable, acidulating the secretion, and stimulating and disinfecting the mucous surfaces involved. Phosphatic calculi are said to be dissolved by the long-continued use of Ammonium Benzoate.

Sodium Benzoate has been largely used as a substitute for the salicylates in the septic diseases, being equally antiseptic and antipyretic. Though slower in action, its effects are more permanent, and it is capable of being used in larger doses (ʒij–iij daily). In diphtheria and scarlet fever it has been highly efficient, and in acute rheumatism, typhoid and the malarial fevers, it has rendered good service. In phthisis, its use by inhalation to the extent of $\frac{1}{1000}$ of the body-weight daily has seemed to be of value in some cases. It has also proven very efficient in whooping-cough.

Lithium Benzoate is intended for use in gout and the uric acid diathesis, with the object of forming the very soluble urate of lithium in the system, as also on the theory that, as benzoic acid is converted into hippuric acid at the expense of nitrogenous material which would otherwise become uric acid, the latter product will be lessened.

BERBERIS, Barberry (Unofficial),—is the root of several species of the nat. ord. Berberidaceæ, the one generally used being the *Berberis aquifolium*, or Oregon grape, which grows on the Pacific slope of the United States. Its value is probably due to its alkaloid, *Berberine*, $C_{20}H_{17}NO_4$, a yellow, crystalline body, soluble in hot water and alcohol, but not in ether, which is found also in several other plants, as Hydrastis, Coptis, Podophyllum, Menispermum, Calumba, Xanthoxylum, etc.

Preparations.

Extractum **Berberidis Fluidum**, *Fluid Extract of Berberis* (Unofficial),—Dose, ♏ v–xxx.

Tinctura **Berberidis**, *Tincture of Berberis* (Unofficial),—1 to 5. Dose, ♏ x–ʒj.

Berberina, *Berberine* (Unofficial),—Dose, gr. j–x. Usually occurs in commerce as "Hydrastin," which is a Berberine Muriate prepared from Hydrastis.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

BERBERIS is an astringent bitter, a tonic and stomachic in small doses, but in large doses it is cathartic, producing watery diarrhœa with abdominal pain. It is also believed to possess considerable alterative powers. It has been successfully used as a local application in conjunctivitis, and internally as a remedy for intermittent, remittent and typhoid fevers, diarrhœa and dyspepsia. As an alterative and tonic it is useful in syphilitic and strumous affections, and in pain, soreness and burning sensations along the biliary or urinary tracts with a tendency to gravel or gall-stones it will be found a useful remedy.

BERBERINE has some antiseptic and antiperiodic value, but in large doses is a gastro-intestinal irritant. The Muriate is a useful injection in gonorrhœa, in which it acts by virtue of its antiseptic and astringent powers.

BERGAMOTTÆ OLEUM, Oil of Bergamot,—is a volatile oil, extracted from the rind of the fresh fruit of *Citrus Bergamia*, an orange-tree of the nat. ord. Aurantiaceæ, native in Southern Europe. It is of greenish color, faintly acid, sp. gr. 0.88, and is soluble in alcohol, glacial acetic acid and liquor potassæ. It contains several hydrocarbons of the formula $C_{10}H_{16}$, together with *Bergaptene* or Bergamot Camphor. It is an ingredient of Spiritus Odoratus, and is exclusively used as a perfume in the manufacture of toilet articles.

BISMUTHUM, Bismuth, Bi.—This metal is represented in medicine by four official salts, and several unofficial ones;—the most important of which are the following:—

Official Salts of Bismuth.

Bismuthi Citras, *Bismuth Citrate*, $BiC_6H_5O_7$,— a white, amorphous powder, odorless and tasteless, insoluble in water or alcohol, soluble in Water of Ammonia. Used only for pharmaceutical purposes.

Bismuthi et Ammonii Citras, *Bismuth and Ammonium Citrate*,—is a combination of the citrate with aqua ammoniæ, and has no definite chemical composition. Small, pearly scales, very soluble in water, sparingly in alcohol. Dose, gr. j–v.

Bismuthi Subcarbonas, *Bismuth Subcarbonate*,—a white or yellowish-white powder, of somewhat varying chemical composition, tasteless and odorless, insoluble in water or alcohol. Dose, gr. v–xxx, in powder or emulsion.

Bismuthi Subnitras, *Bismuth Subnitrate*,—a heavy, white powder, of somewhat varying chemical composition, odorless and almost tasteless, of slightly acid reaction; insoluble in alcohol, almost insoluble in water. Dose, gr. v–xxx, several times a day, in powder, pill, or milk; often combined with opium, morphine or belladonna.

Unofficial Salts of Bismuth.

Bismuthi Salicylas, *Bismuth Salicylate*,—exists in two forms, the acid salt and the basic salt, the latter being the one used therapeutically. It contains 76 per cent. of the oxide of bismuth, and 23 per cent. of salicylic acid; and occurs as a white, crystalline salt, almost entirely insoluble in water, alcohol or glycerin. It should give no reaction with perchloride of iron. Dose, gr. v–xx.

Bismuthi Subiodidum (Oxyiodidum), *Bismuth Subiodide*,—a brick-red, heavy, amorphous powder, insoluble in water, insoluble in any reagent without decomposition. Used locally as an antiseptic dusting powder, and internally in doses of gr. jss–iij.

Bismuthi Subgallas, *Bismuth Subgallate*, "*Dermatol*",—a fine, odorless, saffron-yellow powder, insoluble in all ordinary solvents. Used locally.

Bismuthi Oleas, *Bismuth Oleate*,—a pearly-gray, soft, bland substance. [See under Acidum Oleicum, *ante*, p. 78.]

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The action of the insoluble Bismuth salts is chiefly a local one, they being sedative to the end-organs of the nerves, though a minute quantity passes into the blood and acts as a tonic, promoting constructive metamorphosis by increasing the appetite and digestion. They are also feebly astringent, and produce constipation after a time, coloring the stools and tongue a dark clay color, from their conversion in part into the sulphide. Toxic effects when occurring are chiefly due to Arsenic, with which the commercial preparations are usually contaminated.

The Bismuth and Ammonium Citrate being soluble, is more rapid in action, more astringent and irritant, though it is probably precipitated in the stomach by the hydrochloric acid of the gastric juice. It is serviceable in diarrhœa without irritation of the intestinal mucous membrane, but rather relaxation thereof.

The insoluble Bismuth salts are used internally in many forms of disordered digestion, gastralgia, vomiting and diarrhœa, especially in children, but large doses are necessary for efficiency. The best vehicle for them is milk. Locally they are used with advantage in acne rosacea, stomatitis, nursing sore mouth, eczema, intertrigo, ulcers, conjunctivitis, coryza, gonorrhœa, gleet and leucorrhœa.

The Subnitrate is regarded by many practitioners as almost a specific in cholera infantum, given in hourly doses of 3 to 6 grains: also in the diarrhœa of phthisis, in dysentery and intestinal ulceration, it is highly efficient, in doses of 15 grains every hour or two. Externally, it is employed as a dusting powder, either pure or mixed with starch (1 to 5); as a drying application for the nasal, pharyngeal and laryngeal mucous membranes; in suspension as an injection in gonorrhœa (4 to 10 per cent.): and with vaseline (10 to 15 per cent.) as an ointment in eczema, burns and wounds.

The Salicylate (basic salt) when pure, is well borne by the stomach, and can be used for longer periods than the subnitrate. It has been especially serviceable in the diarrhœa of phthisis, in that of typhoid fever, and in chronic gastric and intestinal disorders. It is highly praised as an internal antiseptic in dilatation of the stomach, and to prevent fermentation in the intestinal canal after operations.

The Oleate is credited with mildly astringent and emollient properties, having been used with benefit in pustular affections of the skin and in acne.

Under the fancy name "Dermatol," the Subgallate was introduced as a substitute for Iodoform. It has great stability, as well as valuable drying and bactericidal qualities, and is perfectly non-irritant. It is an excellent vulnerary for wounds and burns, and has proven useful in the treatment of moist eczema, ulcers, and other affections of the eye, diseases of the middle ear, and dental caries.

The Subiodide is an exceedingly valuable agent in the treatment of burns, wounds, ulcers, and similar affections, as a substitute for Iodoform. [See under IODUM.]

It should not be forgotten that the too free use of Bismuth salts for prolonged periods has produced toxic symptoms, similar to those of mercury.

BOLDUS, Boldo (Unofficial),—the leaves and stems of *Peumus Boldus*, an evergreen shrub of the nat. ord. Monimiaceæ, found in Chili. It contains a volatile oil and a bitter alkaloid, *Boldine*. A tincture is made (1 to 5), of which the dose is ♏ v–viij, gradually increased, but large doses have a somewhat narcotic effect, besides causing vomiting and purging.

Boldo is used in anæmia, rheumatism, dyspepsia and general debility, also in catarrhal affections of the urinary passages, and as a substitute for Quinine. In France it is employed as a tonic, especially for cases with chronic torpor of the liver; and in South America it is much used in gonorrhœa and in chronic cystitis.

BROMUM, Bromine, Br,—is a dark, brownish-red, volatile liquid, evolving an irritant vapor of peculiar and suffocating odor. It is soluble in 30 of water at 59° F., very soluble in alcohol, ether, chloroform and carbon disulphide; is a non-metallic element found in sea-water, and in the mother-liquor of certain salt-works, usually in combination. On exposure to air or heat it is completely volatilized. It destroys the color of solutions of litmus and indigo, and imparts a yellow color to solution of starch. It is only used by inhalation and locally as an escharotic. [illegible]

Bromides and their Preparations.

Potassii Bromidum, *Potassium Bromide*, KBr,—colorless, cubical crystals, soluble in 1.6 of water, and 200 of alcohol. Dose, gr. v–ʒj.

Sodii Bromidum, *Sodium Bromide*, NaBr,—colorless, monoclinic crystals, soluble in 1.2 of water, and 13 of alcohol. Dose, gr. v–ʒj.

Lithii Bromidum, *Lithium Bromide*, LiBr,—a white, granular, deliquescent salt, very soluble in water and alcohol. Dose, gr. v–xx.

Ammonii Bromidum, *Ammonium Bromide*, NH_4Br,—colorless, prismatic crystals, soluble in 1.5 of water, and 30 of alcohol. Dose, gr. v–xx.

Calcii Bromidum, *Calcium Bromide*, $CaBr_2$ (Unofficial),—a white, granular, deliquescent salt, very soluble in water and alcohol. Dose, gr. v–ʒj.

Strontii Bromidum, *Strontium Bromide*, $SrBr_2(H_2O)_6$,—colorless, hexagonal crystals, very deliquescent, very soluble in water and in alcohol; insoluble in ether. Dose, gr. v–xxx.

Zinci Bromidum, *Zinc Bromide*, $ZnBr_2$,—a white, granular, deliquescent powder, very soluble in water and alcohol. Dose, gr. ½–ij.

Arseni Bromidum, *Arsenic Bromide*,—see under Arsenum, *ante*, page 132.

Syrupus Ferri Bromidi, *Syrup of Iron Bromide* (Unofficial),—is a syrupy liquid containing 10 per cent. of Ferrous Bromine, $FeBr_2$, prepared by acting on Iron Wire 35 parts with Bromine 75, adding Sugar 600 and Water up to 1000 parts. A translucent, pale-green, odorless liquid of sweet, ferruginous taste and neutral reaction. Dose, ʒ ss–j.

Bromoformum, *Bromoform*, *Tri-bromo-methane*, $CHBr_3$, (Unofficial),—is prepared by the action of sodium hypobromite on acetone, or by the action of bromine upon a solution of equal parts of caustic potash and methyl alcohol. A clear and colorless liquid, of pleasant odor and sweet, agreeable taste; slightly soluble in water, readily soluble in alcohol, and in glycerin. Dose, ♏ v–xx. If it has color it should be rejected as unsafe by reason of decomposition.

Hydrobromic Acid is described on page 72, **Ethyl Bromide** on pages 86, 89, and **Camphora Monobromata** under *Camphora*.

PHYSIOLOGICAL ACTION.

BROMINE is an active and very painful escharotic, a deodorant and an antiseptic, setting free ozone. Its vapor is highly irritant to the respiratory mucous membrane and the eyes, producing cough, hoarseness and dyspnœa. Internally, it is an active, corrosive poison, causing violent gastritis, depression and collapse.

The BROMIDES are preëminently depressants of the cerebral and spinal functions, also alterative, antispasmodic and hypnotic. The Potassium salt is especially a cardiac and muscular paralyzant.

They have a saline taste, and are very diffusible, but slowly eliminated. They are decomposed in the blood, and re-formed at the points of elimination (fauces, bronchi, intestines, skin and kidneys), where they irritate the mucous membranes. Continued for some time, they produce severe gastric catarrh. They reduce the number of the respirations, and the heart's action and force; and though diminishing the calibre of the arterioles, they lower arterial tension. They lessen the activity of the brain cells, producing somnolence; and diminish the sensibility of the peripheral nerves, causing anæsthesia of the skin and mucous membranes. They impair motility and the sexual function, cause great pallor and emaciation, lowered body-temperature, acne on the face and upper extremities, fetid breath, dysphagia, sluggish reflexes and defective coördination; and if long continued may even impair the mental faculties, producing hallucinations in some cases, in others melancholia with suicidal tendency; also incompetence of the sphincters and paralysis, beginning at the periphery and extending to the centres. They sometimes cause maniacal excitement, as in the case of a physician who committed suicide in a frenzy caused by bromidizing himself for sea-sickness.

The general result of their action is termed "Bromism," and is heralded by the acne and lowered faucial sensibility. It is probably due to the sedative influence of these agents on the sympathetic system, causing general anæmia of the brain, spinal cord, sexual organs, and skin.

Several cases of Poisoning by Potassium Bromide have recently been published by Dr. Greenless. The first was that of an epileptic who took 75 grains a day for three weeks, when stupor, coma, and extreme prostration and death followed. The *post mor-*

tem showed intense congestion of the meninges. In another case, an epileptic, the same amount of potassium bromide, 75 grains a day, was given, and in ten days coma and death followed. Both the brain and meninges were congested and the kidneys were in the advanced stage of cirrhosis. The other cases were less prominent and clearly from bromidism which was the result of long use of the drug. In some cases of inebriety larger doses of bromides produce stupor and prostration, from which recovery is slow, and followed by continued prostration.

Differences in Action between the Bromides.

Potassium Bromide is the most toxic to the heart and the muscular system, and is the least hypnotic. It contains 66 per cent. of Bromine.

Sodium Bromide is the least toxic, but the most hypnotic, and acts most energetically on the circulation. It contains 78 per cent. of Bromine.

Ammonium Bromide resembles the Potassium salt in action, except that it exerts less influence on the heart and muscular system, and is somewhat more stimulating.

Lithium Bromide contains the most Bromine, 92 per cent., and resembles the sodium salt in action. It has proved better than the others in some cases of epilepsy, and is by several authorities considered to be the best hypnotic of the series.

Calcium Bromide is an efficient hypnotic, but otherwise much less active than the other salts.

Strontium Bromide is said to be less apt than the other bromides to produce the bromic acne and the other results of bromism.

Zinc Bromide, in large doses, is violently irritant. It is supposed to combine the tonic effects of zinc with the sedative actions of the bromides.

Ferrous Bromide is not official. It is supposed to combine the actions of iron and the bromides, and to produce the effects of a sedative chalybeate tonic. It is not an eligible chalybeate.

Antagonists and Incompatibles.

Vaso-motor stimulants, as Digitalis, Ergot, Belladonna, antagonize many of the effects of the Bromides, but *Morphine* is the most efficient antagonist, especially for the mental symptoms. Nitrous Ether is incompatible with the Bromide of Ammonium, and Acids and metallic salts are so with all the Bromides.

THERAPEUTICS.

The Bromides are used as sedatives to the nervous system, to lower reflex activity, to produce sleep, to subdue excitement of the genital apparatus, and to antagonize congestion of the brain. Their use is that of a specific in epilepsy, but therein are terribly abused, by patients, nurses, and even by physicians,—as Dr. Hammond well elucidates in the last chapter of his book on Nervous Diseases. They should not be used in anæmic conditions, and never for any length of time without the daily supervision of a physician. The combination of Potassium Bromide with Chloral is very unsafe in cases where fatty or weak heart exists, both drugs being active cardiac depressants. In convulsive and spasmodic affections, the bromides are very efficient, and in epilepsy, especially when the seizures are diurnal, the sodium salt is used with great advantage over a long period, in sufficient quantity to maintain anæsthesia of the fauces. It requires occasional purgation to prevent its accumulation, and arsenic to combat the acne. In diabetes of nervous origin, the ammonium salt, long used, has proved curative by its sedative influence on the medulla; and in acute rheumatism it is an excellent alkali. In muscular rheumatism, rheumatic arthritis and myalgia, also in the uric acid diathesis, and the various affections due to undeveloped gout, the lithium salt gives good results. In tetanus and strychnine-poisoning the potassium salt, in large doses, is antagonistic. These agents are generally efficient in nervous erethism, insomnia with congestion, infantile colic, cholera infantum, vomiting of cerebral origin, cardiac irritability when not due to anæmia, delirium tremens, melancholia, whooping-cough and other reflex coughs, seminal losses when plethora exists, and nymphomania. The potassium salt is, by some writers, considered almost specific in subinvolution of the womb, and in uterine hemorrhage not due to a mechanical cause.

STRONTIUM BROMIDE has been favorably known for some time for its beneficial action in gastric affections, particularly in dyspepsia, acetic and lactic fermentation, flatulence from decomposition and vomiting of various origin, including the vomiting of pregnancy. In severe cases of the latter affection it proved entirely successful, administered in doses of gr. xv with meals, twice daily for a month. In epilepsy it has been employed with advantage, in doses of gr. xx thrice daily, gradually increased: and has been used in the treatment of nervous and sick headaches, sea-sickness, insomnia, and other conditions for which the bromides are considered suitable. It is said to be less productive of the bromic acne than are the other bromides in general use.

The Syrup of Iron Bromide has been reported by some observers as very efficient in chorea, and its usefulness therein is as strenuously denied by others.

BROMINE is not much used. Its vapor may be inhaled from hot water in acute coryza, hay-asthma, etc., and in chancre and hospital gangrene it is the best escharotic. In diphtheria and membranous croup, a solution of ♏viij to the ℥, used internally, and inhalation of the vapor, have been used successfully in the most severe cases.

Bromoform is an analogue of Chloroform, and was discovered in 1832 by Löwig. Inhaled, it produces anæsthesia on animals, but of shorter duration than that of ether or chloroform. Deep narcosis has been produced in children by overdoses, taken internally; the little patients having been tempted, by the pleasant taste of the medicine, to the surreptitious ingestion of more than was prescribed. It has proven of special efficacy in whooping-cough, administered in daily doses of 5 to 20 minims, administered in glycerin and alcoholic solution. It aborts the paroxysms and reduces their number somewhat, but has little influence otherwise on the regular course of the affection. Increasing doses must not be pushed very far, for fear of toxic symptoms, and the drug must be absolutely colorless if pure.

Inhalations of Bromoform have been used with some success in the treatment of diphtheria; and it has been employed locally with benefit, as a deodorizer, disinfectant and analgesic, in ozæna and in tuberculous and other ulcers of the larynx.

BRYONIA, **Bryonia**, *Bryony*,—is the root of *Bryonia alba* and of *Bryonia dioica*, European perennial plants of the nat. ord. Cucurbitaceæ. It occurs in transverse sections about 2 inches in diameter, having numerous small wood-bundles arranged in circles and projecting lines in the central portion, which is white or grayish. Its taste is acrid and bitter, but it is inodorous. The active principle is the glucoside *Bryonin*, $C_{48}H_{80}O_{19}$, which is intensely bitter, and soluble in water and in alcohol, but insoluble in ether. Dose, of powdered root, gr. x–xxx.

Preparations.

Tinctura Bryoniæ, *Tincture of Bryonia*,—a 10 per cent. solution of the root in alcohol. Dose, ♏v–℥ss.

Bryonin (Unofficial),—is a violent poison in doses of from 3 to 4 grains. Dose, as a drastic purgative, gr. 1/6–1/3.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Bryonia is a pure irritant, setting up local inflammation wherever applied, with febrile phenomena. It has a vesicant action on the skin, and is violently irritant to the serous and mucous membranes. Taken internally, it has caused fatal gastritis; introduced into the pleura, fatal pleuritis has resulted with fibrinous effusion. It has a specific determination to serous and synovial membranes, especially the pleuræ, and is also irritant to muscular fibre, and to the bronchial mucous membrane, causing dry, continuous, shaking cough, with soreness behind the sternum. It produces cerebral congestion, with frontal headache, vertigo, and epistaxis; also, hepatic and renal congestion, burning pain and tenderness in the hepatic region with bilious disturbance amounting sometimes to severe jaundice, vesical tenesmus, and depression of the action of the heart. It is a drastic purgative and a powerful diuretic.

Bryonia is a very old medicine, its most ancient reputation having been in epilepsy, hysteria and mania, conditions in which it is now superseded by other agents. It is a most valuable drug in the second stage of serous inflammations, especially in pleurisy, pleuro-pneumonia, and pericarditis, after Aconite has reduced pyrexia, to limit the extent of the effusion and to promote its absorption. For this, small doses frequently repeated are required. Also, in rheumatic fever, after the swelling of the joints has been reduced by other means, Bryonia is extremely efficient for the pain and stiffness. It is one of the best remedies for a "cold-on-the-chest," with dry, shaking cough, soreness, or shooting pains. It has been used with success in common, continued, or "gastric" fever, relapsing fever, congestive headaches increased by stooping, bilious headache with vomiting, gastralgia with pyrosis and soreness of the epigastrium, constipation, cholera infantum during dry, hot weather, congestion of the liver, croup, and threatened mammitis. Pains of shooting or tearing character, which are increased by movement, are often quickly relieved by this drug. In dropsies of various forms it is used as a drastic purgative and diuretic to remove the accumulated fluid.

BUCHU, Buchu,—is the leaves of *Barosma betulina*, *B. crenulata*, and *B. serratifolia*, S. African shrubs, of the nat. ord. Rutaceæ, each species having differently shaped leaves, but all having crenated or serrated margins, and conspicuous oil-glands at the edges and on their under surface. They contain a *Volatile Oil*, which is probably the active principle, and gives them a peculiar and penetrating odor, resembling that of peppermint; also, *Barosmin*, a bitter extractive, and resin, gum, lignin, etc. Dose, of the leaves, gr. xv–xxx.

Preparations.

Extractum Buchu Fluidum, *Fluid Extract of Buchu.*—Dose, ♏x–ʒj.
Infusum Buchu, *Infusion of Buchu* (Unofficial),—℥j to the pint. Dose, ℥ss–ij.

Physiological Action and Therapeutics.

Buchu in small doses causes a sense of heat in the stomach, which is gradually diffused over the body. It increases the pulse-rate, stimulates the appetite, and produces slight moisture of the skin. It increases the flow of urine, which becomes of darker color and strongly aromatic odor, and deposits a brownish sediment. In large doses it produces vomiting, purging, and strangury, with a burning sensation at the stomach.

Buchu is of especial value in chronic affections of the genito-urinary mucous membrane, on which the volatile oil acts topically, being eliminated by the kidneys. It is a very useful remedy in pyelitis, cystitis, and urethritis; also, in lithiasis, chronic bronchitis, and affections of the prostate gland. It is recommended in atonic dyspepsia, chronic rheumatism, affections of the skin, and for dropsy, but it is not so actively diuretic as to be very efficient in the latter condition.

The Infusion makes an excellent vehicle for saline diuretics.

CADMIUM, Cd (Unofficial).—This metal was official in the Pharmacopœia of 1870, but is no longer so. In its physiological action it resembles both Antimony and Zinc, being escharotic, astringent, and a very depressant emetic. In over-doses, its salts act as irritant poisons, with cerebro-spinal symptoms, such as coma and convulsions. It is never used internally. Its salts in general use are—

Cadmii Sulphas, *Cadmium Sulphate*, (Unofficial),—transparent oblique prisms, efflorescent, and very soluble in water. Used externally in a solution of gr. ss–iv ad ℥j aq. destil., or as an ointment (1 to 40 of fresh lard).

Cadmii Iodidum, *Cadmium Iodide*, (Unofficial),—large, white, pearly crystals, soluble in water and alcohol. Used as an ointment, 1 to 8 of lard.

The Sulphate has been used almost exclusively as a stimulating astringent in gonorrhœa and diseases of the eye. Corneal opacities are absorbed under the use of a solution of gr. ij to the ℥, and in gonorrhœa a mild injection (gr. ¼ ad ℥j) is very beneficial. An ointment of the Iodide has been usefully employed for enlarged glands, chronic joint affections, cutaneous diseases, nodes and chilblains.

CAFFEA, Coffee, the seed of *Coffea Arabica*, is officially represented only by its active principle, *Caffeine*. The coffee-plant is a small tree of the nat. ord. Rubiaceæ, 15 to 30 feet high, native of South Arabia and Abyssinia, but cultivated in various parts of the world. Its seeds contain *Caffeine* (partly free, partly as a tannate), tannic and caffeic acids, sugar, legumin, etc. By roasting them, part of the caffeic acid is converted into methylamin, the sugar is changed into caramel, and several volatile substances are formed, which give to coffee its peculiar aroma and some of its stimulant qualities, and are collectively known as *Caffeone*, one of them being called *Caffeol.*

Caffeina, *Caffeine*, (*Theine*), $C_8H_{10}N_4O_2+H_2O$. The U. S. Phar. 1890 defines Caffeine (Theine) as a feebly basic, proximate principle, obtained from the dry leaves of *Thea Sinensis*, or from the dried seeds of *Coffea Arabica*, and found also in other plants. In the Phar. 1880, *Guarana* was included by name among its sources. Therefore, the principles named Caffeine and Theine are now officially declared to be identical, and their identity with Guaranine is left unsettled. That all three are identical was the general opinion until recently, their composition being expressed by the formula $C_8H_{10}N_4O_2$, and the physiological action of one being accepted for the others. Some investigators, however, doubt the identity of the first two, and some observers maintain that Guaranine also is a separate body, distinct from either of the others. The Caffeine of commerce is usually obtained from old tea leaves, and is in reality Theine. It contains more nitrogen than almost any other proximate vegetable principle. It occurs in colorless, flexible crystals, which are soluble in 80 of water and 33 of alcohol at 59° F. Dose, gr. j–v.

Theine is contained in the leaves of *Thea Sinensis*, the tea-plant, a native of China and Japan, and a member of the nat. ord. Ternstromiaceæ. The tea-plant also contains tannic acid, and a volatile oil, the latter being most abundant in green teas. Theine is found on the market, that of Merck being considered to be the most reliable. Its solubility in water is much increased by adding an equal part of Sodium Benzoate, say ʒj of each to the fluid ℥, with gr. x of Sodium Chloride. Of this, ♏vj equals gr. ½ of Theine. Dose, gr. ⅙–j, hypodermically, several times a day, for relief of pain.

Preparations.

Caffeina Citrata, *Citrated Caffeine*,—is a very uncertain mixture, and is not considered to be a definite compound. It is prepared by dissolving equal weights of Caffeine and Citric Acid in double the quantity of hot distilled water, evaporating the solution to dryness, and powdering the product, which is white, odorless, of acid taste and acid reaction, soluble in about 3 parts of water, precipitated as Caffeine on further dilution with water, and redissolved with about 25 parts of water. Dose, gr. ij-x.

Caffeina Citrata Effervescens, *Effervescent Citrated Caffeine*,—composed of Caffeine 1, Citric Acid 1, Sodium Bicarbonate 33, Tartaric Acid 30, Sugar 35, triturated, mixed with Alcohol to a paste, dried, and powdered. Dose, ʒj–ij, in a glassful of water, as an effervescing drink.

Extractum Caffeæ Viridis Fluidum (Squibb), *Fluid Extract of Green Coffee* (Unofficial),—is intended as a substitute for the fluid Extract of Guarana. Dose, ʒss–ij. [Compare the title *Guarana*.]

PHYSIOLOGICAL ACTION.

COFFEE is a cerebro-spinal stimulant, a stomachic tonic, and a laxative. It is decidedly diuretic, and is somewhat antiperiodic and highly antiseptic. The green bean produces very different effects from those of the roasted one, exhibiting the action of Caffeine alone, unmodified by that of the empyreumatic products. A tincture of green coffee, besides being an efficient diuretic, has marked anti-lithic powers, and promotes the elimination of the poison of gout from the system.

As a beverage, if used with moderation Coffee assists digestion, promotes intestinal peristalsis, allays the senses of fatigue and hunger, lessens tissue-waste and consequently decreases the formation and excretion of urea (?). Used to excess it disorders digestion, and causes functional disturbances of the nervous system, shown by headache, vertigo, mental confusion, and palpitation of the heart.

It increases secretion, blunts sensation, exalts reflex excitability, increases mental activity, and may produce insomnia and great nervous restlessness. It first briefly stimulates the heart and raises arterial tension, but soon depresses both. The wakefulness is usually preceded by a brief period of drowsiness.

The brief stimulation of the intellect, consequent on drinking a cup of good coffee, cannot be obtained from an infusion of raw coffee, and is probably due to the volatile constituents developed in roasting. *Caffeone* opposes Caffeine in its action on the circulation, as it quickens the pulse and lowers arterial tension. Its action, however, is of brief duration, and soon gives way to the influence of the principal constituent. The *Tannin* is the ingredient which enables it to produce dyspepsia, and is most abundant in those infusions which are kept a long time on the stove before being served.

THE COMMON STIMULANT BEVERAGES COMPARED.

The qualities possessed in common by these substances, and for which they are so universally esteemed by mankind, are three-fold. They all (1) retard the retrograde metamorphosis of the body-tissues (tissue-waste),—thereby enabling the work of the individual to be done upon a smaller supply of reparative material (food), and with less fatigue. Furthermore, when used in moderation, they are all (2) more or less stimulating to the mental processes, and (3) sedative to the nervous system.

This similarity of action they owe to the possession of principles, which, if not identical, are so closely related to each other that until very recently they have been so considered both by chemists and pharmacologists. Their divergence from each other, in the finer shades of their action, depends most probably on the existence in each of differing aromatic and volatile principles, which modify the action of the alkaloid in some degree. Similar principles are developed in them by the various processes of preparation (as roasting, drying, etc.), all of which have some part in determining the general action of the beverage containing them.

COFFEE is more stimulating than Coca, and less sustaining. It is apt to cause severe palpitations of the heart; and may disorder digestion, if long stewed. The Coffee-bean contains only 0.2 to 0.8 per cent. of Caffeine.

TEA (*Thea Sinensis*) is the most refreshing and stimulating member of the group. Used to excess, it powerfully affects the stability of the motor and the vaso-motor nerves, the action of the heart, and the digestive function,—producing flatulent dyspepsia, tremulousness of the limbs, pallor of the surface, irregular cardiac action, and feeble impulse, hallucinations, night-mare, anorexia, headache, nausea and vomiting, obstinate neuralgiæ—especially of the supra-orbital and occipital nerves; also constipation, and a pain in the left side are not infrequent. The condition of chronic tea-poisoning is termed "Theism,"—and is very often seen among women of the lower class in cities, who do not indulge in alcoholic beverages, but freely accept the dominion of the "cup that cheers" and worse than inebriates.

MATÉ (*Ilex Paraguayensis*, Paraguay tea), is supposed to be intermediate in its effects between tea and coffee. It also contains Caffeine, in the proportion of 1.2 per cent.

GUARANA (*Paullinia Cupana* of Brazil), contains an alkaloid—*Guaranine*, in the proportion of 5 per cent., which is probably identical with Caffeine, though some think it more analogous to Theine. It is especially noted for relieving a nervous headache, for which purpose the official fluid extract may be used in doses of ♏xx, three or four times daily, when the basis of that preparation happens to be of good quality.

COCA, or CUCA (*Erythroxylon Coca*), is more sustaining and less of a direct stimulant, than either tea or coffee. The proportion of Cocaine in the leaves varies greatly in different samples, as they occur in commerce.

COCOA (*Theobrôma Cacao*, the Chocolate-tree), is more directly nutritious than any of the group, containing a large quantity of fat, *Oleum Theobromatis* (cacao-butter), which makes it difficult of digestion to many persons. Its alkaloid, *Theobromine*, is closely allied to Caffeine, the latter being considered a Methyl-theobromine. The various preparations of this agent are made from the seeds, after the oil has been expressed from them. They are ground in a mill, mixed with rice, barley, sugar, flour, etc., and put up in powdered form, called *Cocoa*,—but if flavored with vanilla and pressed into a cake, the product is *Chocolate*. The thin husks which envelope the seeds are known as "*Shells*," and are used to make a beverage similar to but milder than cocoa or chocolate.

Physiological Action of Caffeine, Theine, etc.

Caffeine is in general terms a stimulant at first, and subsequently a paralyzant, to the nerve centres in the cerebrum, medulla and cord. In small doses it quickens the action of the heart and raises arterial tension; stimulates the cerebral functions, by increasing the supply of blood to the brain; increases the respiration rate and the secretion of urine. Larger doses (gr. v–viij), often over-stimulate the cerebral circulation, causing thereby great heaviness of the head, flashes of light before the eyes, tinnitus aurium, insomnia, restlessness, and even delirium,—the pulse becoming rapid, feeble, irregular and intermittent, and the general body-temperature elevated, though that of the periphery may be lowered. Large doses depress the heart and respiration, and lower the blood-pressure;—in the smaller animals exalting the reflex excitability of the cord and producing tetanic convulsions;—and in lethal doses paralyzing the cardiac muscle as well as its motor ganglia, but causing death by paralysis of respiration. It powerfully affects muscular fibre, both voluntary and involuntary kinds, throwing it into a state of tetanic contraction resembling rigor mortis. If administered in sufficient quantity it would doubtless prove fatal to man,—but its lethal dose for him would be very large. Caffeine is excreted unchanged in the bile and urine, and is a reliable hydragogue diuretic; acting by stimulation of the secreting apparatus in the kidney, as well as by generally raising the arterial tension. (Brunton.)

Theine, upon the smaller animals, agrees in most respects with Caffeine, except that it requires much larger doses to produce the same effects. It differs, however, in some important particulars. Theine chiefly affects the sensory, Caffeine the motor system. Theine causes spasms and convulsions, and impairs the nasal reflex, early in the course of the poisoning process;—while Caffeine does so late, if at all. Theine decreases the body-temperature,—Caffeine increases it. Theine causes convulsions in frogs, a power now denied to Caffeine, though hitherto ascribed to it. Both alkaloids tend to produce muscular contraction, but Theine causes a peculiar rhythmical contraction in voluntary muscles, which lasts for several hours, and seems to act transversely across the fibre, as the muscle is elongated at each contraction. In man, the principal action of the hypodermic injection of Theine is the production of a profound local anæsthesia at and below the point of injection,—acting therefore outwards along the nerve-trunk, and not towards the centre. It does not affect the motor apparatus, nor does it seem to produce narcosis.

Guaranine is generally considered as identical with Caffeine, though some few observers find in its action a closer analogy to Theine. It affects both sensory and motor nerves, the sensory first, paralyzing them from the centres outwards. [*Cocaine* and *Brucine* act from the periphery inwards.] It causes general hyperæsthesia, and subsequently convulsions of spinal origin,—at first increases and afterwards depresses respiration and the action of the heart. It seems to have a stronger affinity for the sensory than for the motor nerves, and hence resembles Theine more than Caffeine.

Theobromine has the formula $C_7H_8N_4O_2$, and is closely allied to

Caffeine, physiologically and chemically. In fact, Caffeine may be considered a Methyl-theobromine, $C_7H_9(CH_3)N_4O_2$. During roasting the cocoa-bean develops an aromatic principle which gives to chocolate its peculiar flavor. In large doses Theobromine is fatal to small animals.

Sodio-Theobromine Salicylate, *Diuretin*, (Unofficial),—was introduced under the latter title as a proprietary preparation. It occurs as a colorless powder, of sweetish, saline and alkaline taste, soluble in ½ its weight of water, and should contain 46½ per cent. of Theobromine. Being a very unstable compound, it should not be prescribed in combination with other drugs, and when dispensed it should be well sealed from contact with the air, from which it rapidly absorbs carbonic acid, thereby undergoing decomposition. If ordered under its chemical name, and insisted on, the cost should be less than ½ that of the same article under its proprietary title. (Squibb). Dose, gr. x–xv, in powder or aqueous solution, several times a day, as a diuretic.

Diuretin was introduced as a soluble preparation of Theobromine, of value for its prompt diuretic action, influencing the kidneys without causing serious or dangerous results upon the heart, the action of which, however, it strengthens and regulates. Given to healthy persons it does not increase the quantity of the urine, but during its administration in morbid conditions of the renal or cardiac apparatus the volume of urine excreted daily increases three and four-fold, and exudations of non-inflammatory character are rapidly absorbed. It may give rise to slight diarrhœa, and the author has found the body-temperature uniformly subnormal in non-febrile patients while under its influence.

Diuretin has been employed with marked benefit in both cardiac and renal dropsy, in hepatic cirrhosis, and in various diseases of the heart and kidneys accompanied by œdema. The author has seen a large pleuritic effusion disappear rapidly under its use, the fluid having re-accumulated after having been once removed by tapping the pleural cavity. It should be administered in aqueous solution, avoiding acids or acid vegetable juices, which are chemically incompatible, as they precipitate the alkaloid in the form of a thick white sediment.

THERAPEUTICS.

Although without a very extensive range of usefulness, Caffeine is a valuable stimulant in many forms of nervous and cardiac depression, and has proved especially efficacious in headaches of neuralgic or nervous type, the pain being general over the head; gr. j of Caffeine every half hour, or the fluid extract of Guarana, in 20-minim doses every 2 or 3 hours. In choleraic diarrhœa, and that of phthisis, it checks outward osmosis by stimulating the depressed nervous apparatus. In dropsy, cardiac and renal, Caffeine is a diuretic and cardiac stimulant. In cervico-brachial neuralgia, Caffeine may be used hypodermically in doses of gr. j, increased to gr. v. In lithæmia and gout, a tincture of the green bean has marked diuretic and antispasmodic powers, and is very useful in these conditions. In the insomnia of chronic alcoholism, gr. ½ of Caffeine hypodermically, is often efficient. For adynamic fevers, it may well be used in place of alcoholic stimulants. In intermittents, Coffee has a curative reputation among the inhabitants of the Philippines, which is corroborated by the Dutch physicians. In asthma, Coffee is valuable for the paroxysm if not used habitually. In opium narcosis, Caffeine hypodermically, or better still, strong black coffee by the mouth, to antagonize the increasing torpor of the nervous centres.

THEINE is a valuable analgesic, especially so by reason of its prolonged influence over sensation. Its great field of employment is in neuralgia of any kind, cervico-brachial, sciatic, etc., in which doses of gr. ⅙ to gr. ½ hypodermically are efficient, and may be kept up as long as required. To make a cure, however, the nutrition of the nerves must be attended to. In locomotor ataxia, lumbago, etc., it has been used with prompt benefit, in the same manner, promptly relieving pain, without producing any narcotic effect. (Mays.)

CAJUPUTI OLEUM, Oil of Cajuput,—is a volatile oil distilled from the leaves of *Melaleuca Leucadendron*, a tree of the nat. ord. Myrtaceæ, native of the Molucca Islands. It is a bluish-green or colorless liquid, of camphoraceous odor, and neutral reaction. Specific gravity 0.922 to 0.929, freely soluble in alcohol. It contains *Cajuputol* or Bihydrate of Cajuputene, which forms ⅔ of it, the other ⅓ being another oil. Dose, ♏ j–v.

Cajuput Oil resembles Oil of Turpentine, and has similar action to that of the other volatile oils, being a stimulant carminative, somewhat diuretic and diaphoretic, antiseptic, parasiticide and anthelmintic. Externally used, it is irritant to the skin. Swallowed, it produces a sense of warmth in the stomach and accelerates the pulse.

It is not much used internally, though it has been given with benefit in flatulent colic, dropsy, hysteria, chronic rheumatism, scrofula, and syphilis, also in elephantiasis and other cutaneous disorders. Externally, as a strong, stimulating rubefacient, it is efficient in chilblains, muscular rheumatism and nervous headaches.

CALAMUS, Sweet Flag,—is the rhizome of *Acorus Calamus*, a plant of the nat. ord. Araceæ, native in Europe and North America, having an aromatic odor and pungent taste. The unpeeled root should only be used, peeled or bleached calmus being almost inert. It contains a volatile oil and *Acorin*, which is a nitrogenous, bitter principle, also benzoic acid, starch, etc. Dose, indefinite.

Extractum Calami Fluidum, *Fluid Extract of Calamus*,—is made with Alcohol as a menstruum. Dose, ♏ xv–ʒ j.

Calamus is an aromatic bitter, and stomachic tonic, increasing the appetite and stimulating digestion. It is one of the constituents of the preparations termed "bitters," and is chewed as an appetizer.

CALCIUM, Ca,—is the metal characteristic of Lime, Chalk, and all calcareous substances, and though itself unofficial is represented by several official salts and preparations.

Official Salts of Calcium.

Calcii Carbonas Præcipitatus, *Precipitated Calcium Carbonate*, $CaCO_3$,—a fine impalpable, white powder, odorless and tasteless, insoluble in water or alcohol, but soluble in mineral acids or acetic acid with effervescence. Creta (chalk) is native Calcium Carbonate. (See below). Dose, gr. v–xx.

Calx, *Lime, Calcium Oxide*, CaO,—is Lime prepared by burning white marble, oyster-shells, or the purest varieties of native Calcium Carbonate. Occurs in hard, white masses, gradually resolving to a white powder in the air, odorless, of sharp caustic taste and alkaline reaction, soluble in 750 of water and 1300 of boiling water, insoluble in alcohol. Not used internally except in solution. Is a constituent of Potassa cum Calce. (See under *Potassium.*)

Calcii Chloridum, *Calcium Chloride*, $CaCl_2$,—hard, colorless masses, deliquescent, of sharp, saline taste, soluble in 1½ of water and 8 of alcohol at 59° F. Dose, gr. x–xx in solution.

Calcii Sulphas Exsiccatus, *Dried Calcium Sulphate, Dried Gypsum*,—contains about 5 per cent. of water. A fine, white powder, without odor or taste, insoluble in alcohol, soluble in 410 of water at 59° F., in 388 of water at 100° F., and in 476 of water at 212° F. Used in the preparation of Calx Sulphurata.

Calcii Sulphidum, *Calcium Sulphide*, and **Calx Sulphurata**, *Sulphurated Lime*,—are described under SULPHUR; **Calcii Bromidum**, *Calcium Bromide*, under BROMUM; **Calcii Hypophosphis**, *Calcium Hypophosphite*, and **Calcii Phosphas Præcipitatus**, *Precipitated Calcium Phosphate*, under PHOSPHORUS.

Preparations of the Carbonate.

Creta Preparata, *Prepared Chalk*, $CaCO_3$,—is native Calcium Carbonate, freed from most of its impurities by elutriation; a white, amorphous powder, odorless and tasteless, insoluble in water or alcohol. Dose, gr. v–xx. Is a constituent of Hydrargyrum cum Creta, and also of the following:

Pulvis Cretæ Compositus, *Compound Chalk Powder*,—has of Prepared Chalk 30, Acacia 20, Sugar 50 parts. Dose, gr. v–ℨj.

Mistura Cretæ, *Chalk Mixture*,—has of the preceding 20 parts, Cinnamon Water 40, Water to 100, rubbed together and made fresh as required. Dose, ℥ss.

Trochisci Cretæ, *Troches of Chalk*,—each contains of Prepared Chalk 4 grains, Acacia 1, Sugar 6, with a little Nutmeg. Dose, indefinite.

Testa Preparata, *Prepared Oyster-shell* (Unofficial),—contains animal matter intimately mixed with the carbonate of calcium. Dose, gr. x–xx or more.

Preparations of the Oxide.

Liquor Calcis, *Solution of Lime*, *Lime-water*,—contains about 0.17 per cent. of Calcium Hydrate, $Ca(HO)_2$. A clear, colorless liquid, of saline taste and alkaline reaction. Dose, ℥ss–ij.

Syrupus Calcis, *Syrup of Lime* (*Saccharated Solution of Lime*),—contains 6½ per cent. of Lime, and 40 of Sugar, the latter aiding the solvent power. Dose, ℨss–ij. Is the antidote to poisoning by Carbolic or Oxalic Acid.

Linimentum Calcis, *Lime Liniment*, *Carron Oil*,—contains equal volumes of Lime-water and Linseed Oil, mixed by agitation. For local use.

Calx Chlorata, *Chlorinated Lime*, is described under CHLORUM; **Potassa cum Calce**, *Potassa with Lime*, under POTASSIUM.

Preparations of the Phosphate and Hypophosphite.

Syrupus Calcii Lactophosphatis, *Syrup of Calcium Lactophosphate*,	under PHOSPHORUS.
Syrupus Hypophosphitum, *Syrup of Hypophosphites*,	
Syrupus Hypophosphitum cum Ferro, *Syrup of Hypophosphites with Iron*,	

PHYSIOLOGICAL ACTION.

LIME before it assumes the condition of Hydrate is irritant and caustic, and if inhaled or swallowed may produce dangerous inflammation. The preparations of Lime and Chalk are feebly alkaline and astringent; they neutralize the acid of the gastric juice and are sedative to the mucous membrane of the stomach. A small quantity of the oxide passes into the blood and promotes constructive metamorphosis,—but if used in large quantity or for a long time it will act in the opposite manner, producing waste.

CALCIUM CHLORIDE is a gastro-intestinal irritant, very diffusible and remarkably alterative, being apparently a powerful antagonist to the strumous diathesis.

The action of the other salts of Calcium is described under the titles of their respective bases.

Antagonists and Incompatibles.

The preparations of Lime and Chalk are incompatible with acids and metallic salts. In poisoning by Lime the antidote is a dilute *Vegetable Acid*, followed by demulcents or the fixed oils to protect the mucous membrane.

THERAPEUTICS.

LIME may be used as a caustic and depilatory, but is better known as an agent for hastening decomposition, which it does by its affinity for water, the resulting Hydrate absorbing many of the products. CHLORINATED LIME is an excellent antiseptic and disinfectant, but as it owes its energy entirely to its chlorine it will be described under that title. LIME-WATER is a favorite remedy for vomiting, especially in children, and is added to milk to increase its digestibility. It is also efficient for acid dyspepsia and mucous enteritis, as an antacid and astringent. Locally it is usefully employed as an enema against thread-worms, as a lotion in many mucous and purulent discharges, and in aphthæ. The vapor of slaking lime or lime-water as spray are often very serviceable inhalations in diphtheria. SYRUP OF LIME contains more lime in solution than lime-water, and may be used instead of the latter where a diluent is not advisable. It is the antidote for poisoning by Carbolic or Oxalic Acid, while lime in any form (as wall-plaster) is a valuable antidote for poisoning by any mineral acid.

CHALK-MIXTURE is used in the diarrhœas of children with sour-smelling, watery stools; and may be conveniently prescribed in combination with other astringents. LIME LINIMENT is used on cotton or lint as a dressing for burns.

CALCIUM CHLORIDE has been advantageously employed in the various manifestations of the strumous diathesis. It sometimes resolves glandular enlargements, calcifies tubercular deposits, aids the cicatrization of ulcerating cavities, and has been curative in eczema and lupus. It is strongly recommended in chorea, phthisis and in the colliquative diarrhœa of strumous children. In solution externally as a fomentation it will hasten the maturation of boils.

The therapeutics of the other salts of Calcium are included under those of their respective bases.

CALENDULA, Marigold,—is the florets of *Calendula officinalis*, the common Garden Marigold, a plant of the nat. ord. Compositæ, frequently cultivated for ornament. The tincture (20 per cent.) is also official, and is exclusively used as a local application to promote the healing process in wounds, ulcers, burns and other breaches of tissue. Extravagant views of its powers as a vulnerary are promulgated by the so-called "homœopathic surgeons," and serve as one of their excuses for professing an exclusive position in the art of surgery.

CALUMBA, Columbo,—is the root of *Jateorhiza palmata*, a plant of the nat. ord. Menispermaceæ, native in southeastern Africa, but cultivated in the East Indian Islands. It occurs in nearly circular disks, having two or three interrupted circles of projecting wood-bundles, odor slight, taste mucilaginous, aromatic and bitter. It contains the alkaloid *Berberine* (see under BERBERIS, *ante*, page 147), a bitter principle named *Calumbin*, also Calumbic Acid and Starch, but no Tannin. Dose, gr. v–xxx.

Preparations.

Extractum Calumbæ Fluidum, *Fluid Extract of Calumba*.—Dose, ♏ v–xxx.
Tinctura Calumbæ, *Tincture of Calumba*,—1 in 10. Dose, ʒ ss–ij.

Calumba is the first in alphabetical order of the simple bitters, having no astringency or aroma, and its action, as herein described, will apply to other members of that class (Quassia, Gentian, Cornus). It stimulates the nerves of taste, increases the flow of saliva, excites the flow of the gastric juice and the gastric circulation, thus increasing the appetite and promoting digestion, and so promoting the constructive metamorphosis. As it also increases the gastric mucus, its continued use will set up catarrh of the stomach, and interfere with digestion, though it is one of the least irritant of stomachic tonics.

As Calumba contains no Tannin, it may be administered with the salts of Iron, and is often prescribed with the sub-carbonate. It is useful in atonic dyspepsia with pain after eating, in the convalescent stage of disease to promote appetite and digestion, in diarrhœa and dysentery, vomiting, sea-sickness, cholera morbus and cholera infantum. An Infusion of Calumba with Ginger and Senna is effective in flatulence, and the same preparation is a good vehicle for the administration of acids and alkalies, tonics, aromatics, and mild cathartics. Having little or no irritant quality, it is an excellent tonic in the hectic of phthisis.

CAMBOGIA, Gamboge,—is a gum-resin, obtained from *Garcinia Hanburii*, a Siamese tree of the nat. ord. Guttiferæ. It occurs in cylindrical pieces, of orange-red color, but yellow when powdered. Its taste is very acrid. It contains 73 per cent. of *Gambogic Acid*, a resinous substance, also 25 per cent. of gum and 2 of water. It is partly soluble in alcohol and ether. The only official preparation is the Pil. Catharticæ Co. (described under COLOCYNTHIS), each pill containing gr. ¼ of Gamboge. Its dose, as a cathartic, is gr. ij–v,—as a diuretic, gr. j at short intervals.

Gamboge is an irritant purgative, decidedly diuretic, and its powder is sternutatory, Its catharsis is accompanied by vomiting and colic, and the stools produced are watery, but not so much so as generally believed. It has no cholagogue action. Full doses are liable to produce violent gastro-enteritis, and incautiously used (as in Morrison's pills) it has frequently caused death. On the other hand, large doses have been given continuously in some cases, without producing any dangerous symptoms.

Gamboge was formerly much used as a hydragogue cathartic and diuretic in dropsies, but its irritant qualities have caused it to be superseded by other agents (elaterium, digitalis, etc.). However, for dysentery, especially when in young subjects, very small doses (gr. $\frac{1}{12}$) at short intervals, up to gr. ¼ in 24 hours, have proven to be remarkably efficacious.

CAMPHORA, Camphor, $C_{10}H_{16}O$,—is a stearopten (solid volatile oil), derived from *Cinnamomum Camphora,* a tree of the nat. ord. Laurineæ, and purified by sublimation. Occurs in white, translucent, waxy masses, of penetrating odor and pungent taste, lighter than water, in which it is sparingly soluble (1 to 1300), but dissolves readily in alcohol, ether, chloroform, benzin, oils, etc. The camphor-tree is indigenous in China, Japan, Formosa and other parts of Eastern Asia. Borneo Camphor has the formula $C_{10}H_{18}O$, bears the same relation to Japanese Camphor as alcohol bears to aldehyde, and is heavier than water. Dose, gr. j–xx.

DERIVATIVES of Camphor are—*Camphor-cymol* which is obtained by its distillation with zinc chloride,—*Camphoric and Camphretic Acids,* which result respectively from its lesser or greater oxidation,—*Safrol,* also contained in Sassafras oil, but obtained in much larger quantities from Camphor oil, a waste by-product in the production of crude camphor.

Preparations.

Aqua Camphoræ, *Camphor-water,*—Camphor 8, Alcohol 5, Distilled Water to 1000. Used externally or as a vehicle. Dose, ℨj–iv.

Spiritus Camphoræ, *Spirit of Camphor,*—10 per cent. in Alcohol. Dose, ♏v–xx.

Linimentum Camphoræ, *Camphor Liniment,*—Camphor 20, Cotton-seed Oil 80.

Ceratum Camphoræ, *Camphor Cerate,*—has of the Liniment 10, White Wax 30, Lard 60. Used for itching skin-affections.

Camphora Monobromata, *Monobromated Camphor,* $C_{10}H_{15}BrO$,—colorless, prismatic needles or scales, of mild camphoraceous odor and taste, and neutral reaction, almost insoluble in water, slightly in glycerin, freely in alcohol, ether, oils, etc. Dose, gr. j–x, in emulsion.

Acidum Camphoricum, *Camphoric Acid,* $C_8H_{14}(COOH)_2$ (Unofficial),—is a dibasic acid, obtained by the action of nitric acid on camphor. Occurs in white, acicular, odorless crystals, of feebly acid taste; insoluble, or nearly so, in cold water, readily soluble in hot water, alcohol, ether and fatty oils. Dose, gr. x–xxx, dry on the tongue.

Rubini's Tincture of Camphor (Unofficial),—is a saturated solution in alcohol, ℥j in ℥j¼, of which the dose is from 4 to 10 drops. ♏vij have caused toxic symptoms in an adult.

Raspail's "Eau Sedative" (Unofficial),—contains Aq. Ammoniæ ℥ij, Sodii Chloridum ℥ij, Camphorated Spirits of Wine ℨiij, Water Oij. Used externally.

Camphor is also an ingredient of Linimentum Saponis, Linimentum Sinapis Compositum, and Tinctura Opii Camphorata.

PHYSIOLOGICAL ACTION.

Camphor is antispasmodic, anodyne, antiseptic, diaphoretic, a stimulant expectorant, a cerebral excitant, a gastro-intestinal irritant, and a rubefacient. It has an acrid, hot taste, and irritates the skin and mucous membranes, in quantity exciting severe gastric inflammation with all the effects of an irritant poison. In medicinal doses it stimulates the vasomotor system and the cardiac motor ganglia, and lessens the influence of the pneumogastric,—thus increasing the circulation and raising arterial tension. It also stimulates respiration and mental activity, even producing intoxication; promotes diaphoresis, allays pain, and increases the menstrual flow and the sexual appetite, but its continued use depresses the generative function. "Camphora per nares castrat odore mares."

Large doses cause gastro-intestinal inflammation, depress the heart and lower arterial tension, diminish the reflex function of the spinal cord, produce coldness of the surface, insensibility, coma, convulsions and perhaps death.

As many as 200 grains have been taken without fatal result, yet 6 or 7 grains have produced extreme drowsiness and weakness of the pulse, and 20 grains laid an Alpine guide up for a day.

It is eliminated by the bronchial mucous membrane, skin and kidneys, and has often caused dysuria.

MONOBROMATED CAMPHOR resembles the bromides in action, but is not identical therewith. In mammals it produces muscular weakness passing into paralysis, lowered temperature and respiration, stupor and death. In some cases its use by man has been followed by epileptiform convulsions. It is a nervous sedative and hypnotic, and a gastric irritant.

Antagonists and Incompatibles.

Arterial sedatives, coffee, cold, etc., antagonize its action. Water precipitates it from the alcoholic solution, alkalies and earthy salts precipitate even the small quantity which is soluble in water. Emetics to remove as much as possible. Opium and Bromides for the convulsions.

THERAPEUTICS.

CAMPHOR was much used by the older physicians as an antispasmodic, and is yet greatly valued in China and Japan. It has a reputation for uncertainty of therapeutic action, but is usefully administered in cholera and choleraic diarrhœa, summer diarrhœa and that of infants, vomiting, gastralgia, cardiac depression, nervousness and nervous headache, nymphomania, capillary bronchitis, typhoid and eruptive fevers, dysmenorrhœa, afterpains, chordee, strangury, and catarrhal colds. Locally it is effective in myalgia, lumbago, toothache, gangrene, and other conditions where counter-irritation or a local anodyne are required. A solution in ether has been found to be a beneficial application in erysipelas.

MONOBROMATED CAMPHOR is used as a nerve sedative and hypnotic, but is not particularly efficient in this regard. It has been used with advantage in whooping-cough, neuralgia, chorea, hysteria, delirium tremens and epilepsy.

Camphora Carbolata is a name given to a mixture of 2½ parts of camphor with one each of carbolic acid and alcohol. This preparation, mixed with olive-oil, is a good non-irritating and antiseptic dressing for wounds and breaches of surface.

Camphor-Chloral is a fluid obtained by triturating together equal parts of camphor and chloral hydrate. It has decided solvent powers, dissolving sulphate of morphine readily (gr. xx in ℥ij), and many other salts of alkaloids. It is often a serviceable application in superficial neuralgia, and is said to allay spasmodic cough if painted over the larynx.

Camphora Salicylata is obtained by heating together 11 parts of salicylic acid and 14 of camphor. An ointment prepared from this substance has been used with very satisfactory results in the treatment of phagedena, spreading syphilitic sores, epithelioma, lupus, etc.

Camphoric Acid in solutions of ½ to 6 per cent. strength, has been used with benefit as a topical agent in cystitis, and in coryza, acute bronchitis, and other affections of the respiratory tract. Internally administered it gives good results as an intestinal disinfectant, and has lately come into prominence as one of the most efficient agents against sweating from various causes, especially the profuse night-sweats of pulmonary tuberculosis. For this purpose it is best administered dry on the tongue, in dose of 10 to 30 grains, not more than two hours before the time for the expected sweating to occur,—as it is quickly and abundantly eliminated by the urine.

CANNABIS INDICA, Indian Cannabis, *Indian Hemp,*—is the flowering tops of the female plant of *Cannabis sativa*, grown in the East Indies; a coarse, pubescent, somewhat viscid annual of the nat. ord. Urticaceæ, having an erect, branching stem, 3 to 6 feet high, with alternate or opposite digitate leaves on long, weak petioles. The tops are about two inches long, branching, compressed and brittle, having a few digitate leaves with linear-lanceolate leaflets, and numerous bracts, each containing two small pistillate flowers, sometimes with the nearly ripe fruit, the whole more or less agglutinated with a resinous exudation. Color brownish, odor peculiar and narcotic, taste slightly acrid.

Cannabis Americana, *American Cannabis* (Unofficial),—is the same plant, *Cannabis sativa*, grown in the Southern States.

The two varieties are specifically identical with each other, differing only in the degree of their action, that grown in India being the most powerful. They contain a resin named *Cannabin*, and a *Volatile Oil*, from the latter of which are obtained *Cannabene*, a light hydrocarbon, and *Cannabene Hydride*, a crystalline body. Cannabis should not be confounded with the so-called "Indian or Canadian Hemp," APOCYNUM CANNABINUM (see *ante*, page 121).

Preparations.

Extractum Cannabis Indicæ, *Extract of Indian Cannabis.*—Dose, gr. ¼–j, if active. Hering's English Extract is one of the best.

Extractum Cannabis Indicæ Fluidum, *Fluid Extract of Indian Cannabis,*—is an alcoholic preparation which in mixtures must be thoroughly emulsified with Acacia, otherwise the resinous drug will separate and float to the top or adhere to the sides of the bottle. The Dose is put at ♏ j–v or x, but the author has frequently administered ʒ j of a good fluid extract without untoward results. Whatever may be the reason, it is a fact which he has often verified, that if the precipitate, formed when the alcoholic preparation is added to water, be of a brownish hue, a dirty, yellow-brown, the sample will prove to be almost inert;—but if of a decided olive-green color, the preparation will be active. The activity will be found to increase almost in direct proportion to the decided green of the precipitate. Samples from the same manufacturer show this difference, often seen between two bottles in the same shipment. The active principle seems to be intimately connected with the chlorophyll or other coloring matter present, and to be destroyed therewith by whatever injures the latter.

Tinctura Cannabis Indicæ, *Tincture of Indian Cannabis,*—strength 15 per cent. Dose, ♏ xx–ʒ j. The above remark on mixtures containing the fluid extract applies also to the tincture of this drug.

Similar preparations of *Cannabis Americana* are prepared by the manufacturers and may be used in larger quantities. The dosage of all preparations of hemp is uncertain, as specimens of the plant vary very much in activity. The best rule is to begin with a small dose, gradually testing the activity of the drug and the susceptibility of the patient by carefully increased doses.

Cannabin Tannate (Unofficial),—is a yellowish-brown permanent powder, insoluble in water and ether, slightly soluble in alcohol, having a not unpleasant odor and a bitterish, astringent taste. No formula has been published for it, but it is claimed to be the tannate of a glucoside by Merck, of Darmstadt, who placed it on the market. Dose, as a hypnotic, gr. v–x.

Preparations used in the East.

Churrus is an impure resin, prepared by rubbing the leaves of the plant together and scraping off the adhering resin.

Gunjah is the dried leaf and tops as sold in the bazaars for smoking purposes.

Hashish, **Bhang** or **Siddhi** is a confection consisting of the leaves and small stalks coarsely broken and mixed with fruits and aromatics. It is employed in the preparation of various electuaries and beverages, and is also smoked with or without tobacco.

PHYSIOLOGICAL ACTION.

CANNABIS INDICA is antispasmodic, analgesic, anæsthetic and narcotic, a cerebro-spinal stimulant and a powerful aphrodisiac. It increases intellectual and motor activity, stimulates the vaso-motor nerves, raising arterial tension, depresses sensation, and strengthens the energy of the uterine muscular fibre, but has no power to initiate uterine contractions. In large doses it causes a pleasurable intoxication, during which the peculiar traits of the individual are exalted, and the ideas follow each other so rapidly as to produce a sense of great prolongation of time, minutes seeming as if hours or even days. With this occurs increased sexual desire, great uterine activity, and sensations of double consciousness and enormous dimensions. The sight and hearing are exalted, pupils dilated, anæsthesia sets in, the reflexes are lowered by stimulation of inhibition (Setchenow's centre?), and if the dose be a heavy one a cataleptic state is induced. Sleep or coma follows according to the size of the dose, but death has never been produced by this drug.

After-effects are dullness, heaviness, vertigo, headache, and confused thought, anæsthesia of the skin, and marked diuresis,—but no nausea, no vital depression, no constipation. Repeated use of the drug causes mental weakness and impotence, the result of over-stimulation. A ravenous appetite is usually one of its effects.

Antagonists and Incompatibles.

Strychnine and Faradism are antagonistic. Caustic Alkalies are incompatible. In poisoning by it the stomach should be evacuated, stimulants given cautiously, and respiration maintained. The effects of a large dose last over 24 hours. Lemon-juice is said to antagonize its effects.

THERAPEUTICS.

CANNABIS INDICA was formerly much employed as an anodyne and hypnotic, also as an anæsthetic during surgical operations. It is now somewhat out of fashion. In migraine it is useful to prevent recurrence of the attack, and in neuralgia it is often very efficient. Uterine affections, as—chronic metritis, subinvolution, menorrhagia, dysmenorrhœa, etc., are greatly benefited by its anodyne quality and its power over the uterine muscular fibre. It is the best hypnotic in delirium tremens, and in traumatic tetanus and paralysis agitans large doses will lower the reflex activity. Dysuria and retention of urine are often relieved by it, while in spasm of the bladder and other painful affections of that organ it wil be found a most efficient remedy. It is useful in functional impotence, especially if combined with Ergot and Nux-vomica. In gonorrhœa it lessens the discharge, relieves the inflammation, burning pain and restlessness, and allays chordee. The tincture of Cannabis Americana is the most useful in this affection, being fully as efficient as Copaiba or Sanda Oil, and much more agreeable. It should, however, be prepared from the fresh plant, and be given in 3 to 5 drop doses 3 or 4 times daily after the subsidence of the acute symptoms. Full doses of the tincture of the Indian plant are extremely efficient in many cases of headache at the menopause, but should be used cautiously until the activity of the sample and the susceptibility of the patient are tested.

Cannabin Tannate is recommended as a powerful hypnotic, not in any degree dangerous and neither disturbing the secretions nor leaving unpleasant after-effects. It has been used with benefit in acute mania.

CANTHARIS, Cantharides, *Spanish Flies,*—is the dried beetle, *Cantharis vesicatoria,* an insect of the nat. ord. Coleoptera, about an inch long, of a shining green color, the powder being grayish-brown, with green particles, odor very disagreeable. Contains *Cantharidin,* $C_{10}H_{12}O_4$, the active principle,—also a greenish volatile oil and peculiar fatty bodies.

Preparations.

Tinctura Cantharidis, *Tincture of Cantharides,*—strength 5 per cent. Dose, ♏ j–xx.

Ceratum Cantharidis, *Cantharides Cerate, Blistering Cerate,*—Cantharides 32, Yellow Wax, Resin, Lard, of each 18, Oil of Turpentine 15.

Collodium Cantharidatum, *Cantharidal Collodion, Blistering Collodion,*—Cantharides 60, Flexible Collodion 85, Chloroform to 100.

Emplastrum Picis Cantharidatum, *Cantharidal Pitch Plaster, Warming Plaster,* —Cerate of Cantharides 8, Burgundy Pitch to 100.

PHYSIOLOGICAL ACTION.

Cantharis applied to the skin is a rubefacient and vesicant, acting more slowly than mustard but much more severely. Internally it is also irritant, causing heat of stomach, gastralgia, nausea, and vomiting, the circulation is stimulated, temperature elevated, urine becomes scanty and irritating, is voided with difficulty and pain, and often contains blood and albumen. Afterwards the pulse falls, temperature and arterial tension are lowered, and depression ensues. A toxic dose produces severe gastro-enteritis, abdominal tenderness, tenesmus, mucous or bloody stools, pain in the stomach and loins, dysphagia, ptyalism, strangury, priapism, hematuria, swollen genitals, abortion, muscular tremor, convulsions, coma and insensibility. Post-mortem shows evidences of violent metritis, gastro-enteritis and general peritonitis. Cantharis is aphrodisiac by causing vascular turgescence of the genital apparatus, but only in doses which produce dangerous symptoms. It is abortive only in toxic doses. In small doses it is diuretic and emmenagogue.

Counter-irritation by rubefacients or blisters acts on disease probably through the nervous system. Its influence is explained by the theory that the peripheral extremities of the nerves supplying the skin of the part to which the agent is applied undergo some molecular change, which extends to the nerve centre and is thence radiated to centrifugal or trophic nerves, effecting various changes in nutrition and secretion over the areas to which they are distributed. In addition to this method of action, neighboring parts are affected by direct extension of the inflammation produced, and distant parts are also affected by absorption through the vesicated surface of agents having special affinities for certain organs.

Blisters act primarily as a stimulant to the body generally as well as to the organs in its vicinity, but if permitted to remain long enough to produce large blebs, the result is depression proportionate to the amount of serum abstracted, the serum containing nearly as much albumen as the blood itself.

Antagonists.

There is no chemical or physiological antagonist to Cantharis. Evacuation of the stomach, mucilaginous drinks freely, Opium for the gastro-enteritis, are the best measures in poisoning by this agent.

THERAPEUTICS.

As a counter-irritant and vesicant Cantharis is of great value in neuralgia if applied close to the emergence of the nerve from the spinal column, also in sciatica and neuritis, and in acute rheumatism around the affected joints. A blister at the nape of the neck controls many headaches, and one behind the ear will modify inflammatory affections of the eye. In pleuritic effusions a succession of small blisters (flying-blisters) will promote absorption of the pleural contents, and a blister applied to the perineum will often cure a rebellious gleet. Though valuable as a therapeutic measure in very many conditions, blistering is going out of fashion except in hospitals and among people who believe in heroic treatment. It is invaluable in subacute joint affections.

As an internal remedy Cantharis must be employed in very small doses (♏j-iij of the tincture) in order to be efficient. When so used it is an admirable agent in acute desquamative nephritis after the active inflammation and fever have subsided, to reduce the albumen and blood in the urine. Drop-doses are particularly useful in irritable bladder with frequent desire to micturate, so often observed in women, also in the incontinence of the aged and of children, and in cystitis, gonorrhœa and gleet. The same dose thrice daily will generally abate chordee. In spermatorrhœa, prostatorrhœa, scanty menstruation and menorrhagia in subjects of lax fibre and general want of tone it is often very serviceable. Cutaneous squamæ and vesiculæ are greatly improved by small doses frequently administered and gradually increased, and it is one of the best remedies for psoriasis. For alopecia areata it is of the utmost value as an external application, and the tincture, greatly diluted, is an ingredient of all the hair-renewers in common use. In pleurisy, after effusion has taken place, it will be found admirable in 1 to 2 drop doses every 2 or 3 hours, and in the after-prostration of diphtheria it proves a serviceable stimulant. One of the best applications to burns or scalds is a cloth dipped in a lotion of the tincture one part to thirty or forty of water. The same lotion is an efficient application to vesicular erysipelas and herpes zoster.

CAPSICUM, Cayenne Pepper, *African Pepper,*—is the fruit of *Capsicum fastigiatum*, a plant of the nat. ord. Solanaceæ, native in tropical Africa and America. Occurs in small red pods, enclosing two cells containing flat, yellowish seeds, and has a peculiar odor and an intensely hot taste. It contains *Capsicin,* which is a thick, red liquid, and is the active principle,—also a volatile alkaloid having the odor of Coniïne. Dose of the powdered drug, gr. v–x.

Preparations.

Extractum Capsici Fluidum,—*Fluid Extract of Capsicum,*—alcoholic. Dose, ♏ v–xxx.

Tinctura Capsici, *Tincture of Capsicum,*—5 per cent. strength. Dose, ♏ x–ʒ j.

Oleoresina Capsici, *Oleoresin of Capsicum,*—prepared by ether. Dose, ♏ j–v.

Emplastrum Capsici, *Capsicum Plaster,*—prepared from the Oleoresin of Capsicum and Resin Plaster. An excellent warming plaster.

PHYSIOLOGICAL ACTION.

Capsicum is irritant to the skin and mucous membrane. Externally used for sufficient length of time it will produce vesication, internally in quantity it will excite gastritis. In medicinal doses it increases the saliva, excites a sensation of warmth in the stomach, promotes appetite and digestion, and produces more easy and copious alvine evacuations. It stimulates the action of the heart, is diaphoretic and diuretic, also decidedly aphrodisiac. It is a general stimulant to the nervous system, but in repeated doses produces a slight narcotic effect upon the brain. On the vascular system it acts like ergot, powerfully constringing the vessels by influencing the unstriped muscular fibre in their walls, either directly or through the vaso-motor nerves.

THERAPEUTICS.

Capsicum is an excellent stomachic tonic in atonic dyspepsia and in that of chronic alcoholism with tremor and insomnia. In acute dipsomania and delirium tremens large doses are efficient in producing sleep and promoting appetite. It is the best substitute for alcohol and opium in attempts to cure those habits. It is well used in intermittents, chiefly as an adjuvant to more active drugs,—in flatulent colic, especially when occurring in hysterical women and hypochondriacs,—also in low fevers and cholera as a stimulant. It gives good results in functional impotence, in spermatorrhœa from loss of tone, in chronic parenchymatous nephritis to check the waste of albumen, and is beneficial in chronic cystitis and in prostatorrhœa. The tincture internally, and a plaster externally over the loins, are efficient in cases of renal congestion with habitual pain in the back and a trace of albumen in the urine.

Locally the tincture diluted (ʒj to ℥viij) or the powder with honey, form excellent gargles for relaxed throat and its accompanying cough, relaxed uvula, inflammatory sore throat, and the cynanche of scarlet fever, but they must be used with caution, as such applications are sometimes very irritating.

The Capsicum-plaster is a mild counter-irritant, of great value in lumbago and other muscular rheumatisms as a palliative application.

CARBO, Carbon, C,—exists in nature in many forms, of which two are official, namely, the charcoals specified below.

Carbo Animalis, *Animal Charcoal,*—prepared from bone, occurring in dull black fragments or powder, odorless and nearly tasteless, insoluble in water or alcohol.

Carbo Ligni, *Charcoal,*—prepared from soft wood, and very finely powdered; is black, shining, brittle, inodorous, tasteless and insoluble.

Preparations.

Carbo Animalis Purificatus, *Purified Animal Charcoal,*—the bone-phosphate and calcium carbonate being removed by digesting with Hydrochloric Acid and washing. Dose, gr. xx–ʒj.

Carbonei-Disulphidum, *Carbon Disulphide,* CS_2,—is a clear, colorless, diffusive liquid, of strong, offensive odor, aromatic taste and neutral reaction; soluble in alcohol, ether, chloroform and oils, and in 535 of water; vaporizes at ordinary temperatures, and is highly inflammable. Dose, ♏ ss–j.

PHYSIOLOGICAL ACTION.

CHARCOAL is an efficient deodorant and disinfectant, as it absorbs and condenses many gaseous bodies and vapors. It is evacuated unchanged by the bowel and exerts no specific action on the body.

CARBON DISULPHIDE is largely used in the arts, hence its effects are frequently observed. Persons exposed to its fumes are affected by headache, vertigo, over-excitement of the nervous system, emaciation, incoördination of movement, depression of all the special senses with impairment of sensation and motility and perhaps insanity. Inhaled directly, it excites violent coughing, and produces anæsthesia characterized by great muscular rigidity. Being a powerful cardiac paralyzant, it is extremely dangerous as an anæsthetic. In 3-drop doses it produces severe nausea and vomiting, with a sense of heat in the stomach and a weak and rapid action of the heart. It is a good solvent for Caoutchouc and many other substances.

THERAPEUTICS.

CHARCOAL is used in pharmacy for decolorizing vegetable principles, removing alkaloids from infusions of plants, and making several preparations, as acidum sulphurosum, potassii iodidum, etc.

Externally, it makes an efficient disinfectant, absorbent and deodorant application to cancerous discharges, foul ulcers and gangrenous wounds. Having no odor it is not open to the charge of substitution of one smell for another. A small quantity added to water will keep it sweet for a long time. It is an excellent dentifrice if finely powdered.

Internally, it is used for the same purposes, namely, to absorb gases and offending products of indigestion. In flatulent dyspepsia, gastralgia, pyrosis, diarrhœas, nausea of pregnancy, epidemic cholera, and constipation, it has warm advocates. When used internally for any time, an occasional purgative should be given to prevent its accumulation in the intestines. It has been proposed as an antidote for several alkaloidal poisons on theoretical grounds, but its efficacy in this respect is doubtful.

CARBON DISULPHIDE has such a horribly offensive odor that it will never be used for any purpose for which another agent can be found. It relieves the pain of gastric cancer, and in ½-drop doses will alleviate nausea and vomiting, also gastralgia. Locally it has been used as a counter-irritant and a local anæsthetic, for deafness due to want of nervous energy, in facial neuralgia and various local pains.

CARDAMOMUM, Cardamon,—is the fruit of *Elettaria repens*, a plant of the nat. ord. Scitamineæ, cultivated in Malabar. Occurs as dried capsules, containing small, reddish-brown seeds, of warm, aromatic taste and agreeable odor. Contains about 4½ per cent. of a *Volatile Oil*, $C_{10}H_{16}$, isomeric with Oil of Turpentine, which oil is the active principle, also a fixed oil, coloring matter, etc. It is an ingredient of Pulvis Aromaticus and of Extractum Aromaticum Fluidum (See under CINNAMOMUM), as well as of several compound preparations.

Tinctura Cardamomi, *Tincture of Cardamon*,—10 per cent. strength. Dose, ʒj–ij.

Tinctura Cardamomi Composita, *Compound Tincture of Cardamon*,—Cardamon 20, Cinnamon 20, Caraway 10, Cochineal 5, Glycerin 50, Diluted Alcohol q. s., ad 1000. Dose, ʒj–ij.

Infusum **Cardamomi**, *Infusion of Cardamon* (Unofficial),—may be made in the strength of ʒj to O½, and used in wineglassful doses.

Cardamon is aromatic, carminative and stomachic, and is used as an agreeable flavoring for bitter mixtures in dyspepsia and other stomach affections. It is especially useful when combined with purgatives to check flatulence and griping, and it makes the best flavoring for saline solutions or mineral waters.

CARDUUS (Unofficial), the seeds of *Carduus marianus*, or St. Mary's thistle, an annual European plant of the nat. ord. Compositæ. A decoction (℥ij ad Oj) is the preparation usually employed. It is an old remedy recently revived as a hemostatic, and reported as very efficient in hemoptysis, uterine hemorrhage, melæna and amenorrhœa connected with derangement of the portal circulation. It has proved curative in congestion of the liver and simple jaundice, and in Germany it has long been popularly deemed efficacious in gall stones, and liver affections generally. Dose of the decoction, ʒj–℥ss,—of a tincture, ♏x–xx.

Carduus **Benedictus**, the "blessed thistle," also called *Cnicus benedictus* and *Centaurea benedicta*, is another plant of the same order, formerly held in high esteem as a popular "cure-all." It contains *Cnicin*, an amorphous bitter principle, which has been used as an antiperiodic in doses of gr. v–x, but generally produces burning sensations and pharyngeal constriction, with nausea, vomiting, colic, and diarrhœa. It acts chiefly as a bitter tonic, resembling Calumba and Taraxacum most closely.

CARUM, Caraway,—is the fruit of *Carum Carvi*, a European plant of the nat. ord. Umbelliferæ, and is of oblong shape, ⅛th of an inch in length, separating into two parts, each having 5 ribs and 6 oil-tubes. Its odor and taste are aromatic and agreeable. The active principle is the *Volatile Oil*, which is also official. Caraway is an ingredient of Tinctura Cardamomi Composita.

Oleum Cari, *Oil of Caraway*,—is the volatile oil distilled from Caraway, and is resolvable into *Caruen*, $C_{10}H_{16}$, isomeric with Turpentine, and *Caruol*, $C_{10}H_{11}O$, isomeric with Thymol. It is an ingredient of Spiritus Juniperi Compositus. Dose, ♏j–v.

Infusum **Cari**, *Infusion of Caraway* (Unofficial),—ʒj–ij ad Oss. Dose, ℥ss–ij.

The Oil of Caraway is fatal to small animals, and in one case ʒj produced cerebral congestion, delirium and rigors in man. The chief use of Caraway is as a flavoring agent, but it is efficient in the flatulent colic of children, and to prevent griping from the use of purgatives.

CARYOPHYLLUS, Cloves,—are the unexpanded flowers of *Eugenia aromatica*, a handsome evergreen tree of the nat. ord. Myrtaceæ, cultivated in the East and West Indian Islands. They are about ½-inch long, of a dark brown color, consist of a calyx-tube terminated by four teeth and surmounted by a globular head formed by four petals, which cover numerous curved stamens and one style. They emit oil when scratched, have an aromatic odor, and a pungent, spicy taste, and are contained in Tinctura Lavandulæ Composita, Tinctura Rhei Aromatica and Vinum Opii. They contain a heavy *Volatile Oil*, which is official,—also *Eugenin*, $C_{10}H_{12}O_2$, a crystalline body; *Caryophyllin*, $C_{10}H_{16}O$, a camphor; *Caryophyllic Acid*, and tannin, gum, etc.

Preparations.

Oleum Caryophylli, *Oil of Cloves*,—a volatile oil distilled from Cloves, soluble in alcohol, and of sp. gr. 1.060. It consists of a light and a heavy oil, the latter containing

Eugenol, $C_{10}H_{12}O$, a phenol-like compound, and *Caryophyllin*, $C_{10}H_{16}O$, which yields as a product of its oxidation *Caryophyllinic Acid*, $C_{20}H_{32}O_6$. Dose of the oil, ♏ j–iv.

Infusum Caryophylli, *Infusion of Cloves* (Unofficial), may be made of strength 1 to 40, and used in doses of one to two fluid ounces.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Cloves may be considered as a type of several agents yielding aromatic oils, which as a rule consist of terpenes with camphors, resins, fatty and other acids, etc., closely allied to phenol and benzoic acid, the balsams and gum-resins. Such are Orange, Lemon, Allspice, Cajuput, Caraway, Peppermint, etc. Their oils are antiseptic, locally anæsthetic, stimulant, and irritant, antispasmodic, stomachic and carminative. Internally they increase circulation and temperature, promote digestion and nutrition (in quantity may cause inflammation), relieve pain and spasm, and are excreted by the kidneys, skin, liver and the bronchial mucous membrane, stimulating and disinfecting their routes through the organism.

These agents are used to flavor pharmaceutical preparations, to correct the griping tendency of many purgatives, to correct flatulence, to relieve pain in the stomach and bowels, and to promote the flow of saliva and gastric juice. As external applications they are efficiently employed for anæsthetic and counter-irritant purposes, to relieve pain in chronic rheumatism, myalgia, lumbago, superficial neuralgia, toothache, etc. The Oil of Cloves is an effective deodorizer for sponge-tents, a good application to a painful tooth, and is occasionally applied over the course of an aching nerve with relief to the pain.

CASCA BARK, Sassy Bark, Ordeal Bark (Unofficial),—is the bark of *Erythrophlæum Guinense*, an African tree used by the negroes as an ordeal in trials for witchcraft. It contains a poisonous glucoside, *Erythrophlein*, and when used in quantity produces nausea and vomiting, stricture across the brow, severe cephalalgia, narcosis and death. It is used as a remedy in Africa for intermittent fever, dysentery, diarrhœa and colic, and in England is considered to resemble Digitalis in action and uses. A tincture is made (℥ij ad Oj) of which the dose is ♏x; or a watery Extract may be used in doses of gr. j.

Erythrophlœin, the active principle, is a glucoside, and is said to be a local anæsthetic of extraordinary power, even surpassing Cocaine. It is found in Africa in a red mass, called "Hayah," which is proven to be identical with an extract of the original plant described by Œrtel early in this century, and deposited by him in the Berlin museum. It closely resembles Digitalis in action, being a cardiac tonic and a hydragogue diuretic.

CASCARA AMARGA, Honduras Bark (Unofficial),—is the bark of a Mexican tree of the nat. ord. Simarubaceæ, which has been used with apparent success as an alterative tonic and diuretic in syphilis and various chronic skin affections. The use of tobacco and alcohol seems to counteract its usefulness. It is certainly a very powerful tonic and has been employed by competent observers with uniformly good results in syphilis and syphilodermata, chronic liver complaints, chronic eczema, chronic nasal catarrh and psoriasis. A Fluid Extract is on the market, of which the dose is ʒss–j thrice daily.

CASCARILLA,—is the bark of *Croton Eluteria*, a shrub or small tree of the nat. ord. Euphorbiaceæ, growing in the Bahamas. It occurs in grayish-brown quills, having a warm, bitter taste, and a fragrant odor when burned. Contains *Cascarillin*, a crystalline principle, two resinoid extracts, aromatic volatile oils, with tannic acid, etc. There are no official preparations, but an Infusion (1 to 10) or a Tincture (1 to 10) may be prepared and given in doses of ʒj-℥j.

Cascarilla is an aromatic bitter. It increases appetite and digestion, the mucous secretion, the flow of saliva and gastric juice, stimulates the intestinal secretions, and acts as a mild astringent by the influence of its tannin. Large doses produce nausea, vomiting and diarrhœa, and in medicinal doses continued it will set up gastric catarrh and consequently indigestion. It has slight antiperiodic powers.

It has been used with success in epidemic dysentery, flatulent dyspepsia, debility, chronic bronchitis, intermittents, and low nervous fevers. It is difficult to dispense, as the infusion decomposes quickly, and acids precipitate the resin from the tincture.

CASSIA FISTULA, Purging Cassia,—is the fruit of *Cassia Fistula*, a tree of the nat. ord. Leguminosæ, growing in tropical regions of Asia, Africa and America. It occurs in long, brown pods which are divided into numerous transverse cells, each containing a dark pulp in which is a glossy seed. No active principle has been isolated as yet. The pulp is the only valuable part of the drug. There are no official preparations, but it is one of the ingredients of Confectio Sennæ.

Cassia pulp is laxative in doses of ℥j-ij, and purgative in large quantities, producing nausea, flatulence and griping. It is rarely prescribed alone, owing to its tendency to cause colic and flatulence.

CASTANEA, Chestnut,—the leaves of *Castanea dentata*, a stately tree of the nat. ord. Cupuliferæ, which should be collected while green. Chestnut leaves are 5 to 10 inches long and about 2 broad, have a slight odor and somewhat of an astringent taste. They contain tannic and gallic acids, salts, gum, etc.

Extractum Castanea Fluidum, *Fluid Extract of Castanea.*—Dose, ʒss-ʒij.

This drug has not been studied as to its physiological action, if it has any. It is classed among the vegetable astringents by reason of its containing tannin. Its only reputation therapeutically is as a remedy for whooping-cough, in which it is said to be very efficacious. An infusion or decoction of the leaves has been used, in indefinite doses.

CATECHU,—is an extract prepared from the wood of *Acacia Catechu*, a tree of the nat. ord. Leguminosæ, native of the East Indies. Occurs in irregular masses, dark brown and brittle, nearly inodorous, but of astringent and sweetish taste, soluble in alcohol, and partly so in water. It contains *Catechutannic Acid* 50 per cent.; and *Catechuic Acid*, which is converted into the former by heat. Dose, gr. j-ʒss.

Preparations.

Tinctura Catechu Composita, *Compound Tincture of Catechu*,—contains Catechu 10, Cinnamon 5, Diluted Alcohol q. s. ad 100 parts. Dose, ♏ x-ʒj.

Trochisci Catechu, *Troches of Catechu*,—each troche contains of Catechu nearly 1 grain, mixed with Sugar, Tragacanth and Orange-flower Water.

Catechu is a powerful astringent, acting by virtue of its tannic acid, (See *ante*, page 81, for action and incompatibles). Its uses depend entirely on its astringency. In the diarrhœa of children the Tincture with Chalk-mixture is very serviceable, and with Opium it is efficient in dysentery. It is also used as a gargle and mouth-wash in relaxed conditions of the pharyngeal mucous membrane, as an injection in leucorrhœa, and to control passive hemorrhages, spongy gums, etc.

CAULOPHYLLUM, Blue Cohosh,—is the rhizome and rootlets of *Caulophyllum thalictroides*, a plant of the nat. ord. Berberidaceæ growing in Canada and the northern United States. Rhizome about 4 inches long, thick and bent, rootlets numerous and matted, taste sweetish, bitter and acrid. Contains *Saponin*, a glucoside, and two resins. Dose, gr. v–xx. There are no official preparations. The eclectic preparation *Caulophyllin* is a resinous precipitate obtained by pouring an alcoholic extract into water.

Caulophyllum is a new addition to the pharmacopœia, and has not yet been made the subject of experimental work by reliable observers. It was much used by the aborigines of this country in all affections to which their women were peculiarly subject, and was known among them by the name "squaw-root." It is said to produce intermittent contractions of the gravid uterus, to have diuretic, emmenagogue, and antispasmodic powers; and is used as a remedy for deficient labor-pains, spasmodic after-pains, spasmodic pains in the uterus at any time, spasmodic dysmenorrhœa, and pains in other organs seemingly in sympathy with uterine affections. It has somewhat of a reputation in acute rheumatism of the hands and fingers, and as a preparative medicine for labor.

CERA, Wax,—is a mixture of *Myricin*, *Cerotic Acid*, and *Cerolein*, is formed by the honey-bee, and exists in the pollen and leaves of many plants, particularly in *Myrica cerifera*, the wax myrtle. That produced by the bee is alone official.

Cera Alba, *White Wax*,—is yellow wax bleached.

Cera Flava, *Yellow Wax*,—is a peculiar concrete substance prepared by *Apis mellifica*, the honey-bee. It is a yellowish solid, of agreeable odor and faint, balsamic taste, melting at 145.4° to 147° F., of sp. gr. 0.945–0.967, insoluble in water and also so in cold alcohol, but soluble in 35 of ether, 11 of chloroform, boiling alcohol, fixed and volatile oils.

Ceratum, *Cerate*,—consists of White Wax 30, Lard 70.

Unguentum, *Ointment*,—consists of Yellow Wax 20, Lard 80.

Wax is also a constituent of the 5 compound Cerates, 2 of the 22 compound Ointments, and 2 of the 13 Plasters.

WAX owes its value to its power of resistance to decomposition and to many chemical agents. Its fusibility at a moderate degree of heat, and its solidity at the temperature of the body, together with its unirritating quality, make it a valuable ingredient of the cerates and ointments to give them consistence.

CERATUM and UNGUENTUM may be used as simple protective applications. They form the bases of the most of the compound preparations so named.

CERII OXALAS, Cerium Oxalate, $Ce_2(C_2O_4)_3 + 9H_2O$,—is a white, slightly granular powder, odorless and tasteless, insoluble in water or alcohol, but soluble in diluted sulphuric or hydrochloric acid. Dose, gr. j–x, in pill or powder.

Cerium Oxalate is a gastric sedative, and is thought to possess selective action as such on the motor distribution of the pneumogastric nerve. It is considered to be particularly useful in vomiting of reflex origin, especially in the vomiting of pregnancy, but it often fails, probably because not given in sufficient doses. To be effective, at least 4 or 5 grains should be given 3 times a day to adults, and no results promised until after it has been used several days. It is also recommended in the vomiting of phthisis and bronchitis, cough with vomiting, gastralgia, chorea, and diarrhœa.

CETACEUM, Spermaceti,—is a peculiar, concrete, fatty substance obtained from *Physeter macrocephalus*, the sperm whale. Occurs in white, pearly masses, odorless, of bland taste, and neutral reaction, becoming rancid in the air, soluble in ether, chloroform, carbon disulphide and boiling alcohol. Is a constituent of—

Ceratum Cetacei, *Spermaceti Cerate*,—has of Spermaceti 10, White Wax 35, Olive Oil 55.

Unguentum Aquæ Rosæ, *Ointment of Rose Water, Cold Cream*,—has of Spermaceti 12½, White Wax 12, Expressed Oil of Almond 60, Stronger Rose Water 19, Sodium Borate ½.

Unguentum Cetacei, *Spermaceti Ointment* (Unofficial),—has of Spermaceti 5, White Wax 2, Almond Oil 18. The ointment of the B. P. has Benzoin ½ in addition, rendering an emollient preparation irritant, and therefore unsuitable for eye-ointment, for piles, etc.

Spermaceti consists of Cetin (Cetyl Palmitate) with several other fats in small quantities. Its action is solely that of an emollient, and it is rarely used internally, though an alcoholic preparation was once a regular prescription for coughs, bronchial irritation, and for a recently delivered woman. The Cerate is employed as a bland ointment for blisters, abrasions and ulcers, but is too stiff for easy application, and the unofficial Ointment is preferred in practice. The latter on lint to broken blisters from walking affords great relief, and is employed to prevent injury to the feet by smearing on them before starting for a rough tramp over broken ground. The Ointment of Rose Water, popularly known as "cold cream," is one of the most agreeable emollient and protective applications for chapped hands, chilblains and other slight affections of the skin.

CETRARIA, Iceland Moss,—is the lichen *Cetraria islandica*, found in northern latitudes. Occurs about 2 to 4 inches long, brown above, whitish beneath, taste mucilaginous and bitter. Contains *Lichenin* or lichen starch, which forms as a jelly when the plant is boiled in water; also *Cetraric Acid*.

Decoctum Cetrariæ, *Decoction of Cetraria*,—5 per cent. strength. Dose, ℥ij–iv.

Cetraria is nutrient, demulcent and feebly tonic. It has a popular reputation in pulmonary affections, and is of value in chronic catarrhs, chronic bronchitis, purulent discharges from mucous surfaces generally, also in chronic diarrhœa and dysentery.

CHAULMOOGRA OIL (Unofficial),—is a fixed oil expressed from the seeds of *Gynocardia odorata*, an East Indian tree of the nat. ord. Bixaceæ. It is nauseous and bulky, solid at 62.6° F., and soluble in alcohol, ether, chloroform, etc. Its active principle, *Gynocardic Acid*, is the best preparation for use, and may be given internally in doses of gr. ss–ij, or applied as an ointment, gr. xx ad ℥j of Petrolatum. Dose of the oil, gtt. v–x, in capsules.

Chaulmoogra Oil is credited with a few cures of leprosy, and several cases improved by its use both internally and externally. It is recommended as an external application in scaly eczema, psoriasis, syphilitic skin-diseases, chronic rheumatism, rheumatic arthritis and tabes mesenterica.

CHELIDONIUM, Celandine,—is the plant *Chelidonium majus*, nat. ord. Papaveraceæ, which grows in Europe and N. America, about rocky places. It has a peculiar, unpleasant odor, and a pungent, acrid taste. Contains 2 alkaloids, *Chelidonine*, $C_{19}H_{17}N_3O_3$, and *Chelerythrine*, the latter being identical with Sanguinarine: also *Cheli-*

doxanthin, a yellow, crystalline substance, and *Chelidonic Acid*, supposed to be identical with Succinic Acid. Dose of the plant, gr. x–xxx,—of the fresh juice ♏v–xx. There are no official preparations.

Chelidonium used externally is irritant, internally it is a drastic purgative but an unreliable one. It is also perhaps diuretic, diaphoretic and expectorant. In overdoses it is considered poisonous. It is an old remedy for jaundice and liver affections, but has been obsolete for some time. The fresh juice is a popular application for warts and corns, and a tincture in whiskey is used in Indiana as a remedy for phthisis, the menstruum being probably the most useful agent. It seems to be of real service in simple jaundice, whooping-cough, right-sided pneumonia with hepatic involvement, and the catarrhal pneumonia of children.

CHENOPODIUM, American Wormseed,—is the fruit of *Chenopodium ambrosioides*, var. *anthelminticum*, a plant of the nat. ord. Chenopodiaceæ, indigenous in the United States. It is about $\frac{1}{12}$ inch in diameter, and contains a glossy, black seed, has a peculiar terebinthinate odor, and a pungent, bitter taste. Its active principle is a *Volatile Oil* which is official.

Oleum Chenopodii, *Oil of Chenopodium*,—a thin, colorless or yellowish liquid, of aromatic odor and pungent, bitter taste. Dose, ♏v–xv.

The Oil is the only preparation used and that rarely, its odor and taste being very disagreeable. It increases the cardiac rate, and promotes the secretions of the skin, bronchi and kidneys. It is an efficient anthelmintic against the round worm in doses of gtt. x three times a day for two days, followed by a cathartic. It seems to possess some tonic properties, and certainly is a diffusible stimulant. As such it has been used with benefit in chorea, hysteria, flatulent dyspepsia, and chronic malaria.

CHIMAPHILA, Pipsissewa,—the leaves of *Chimaphila umbellata*, or Prince's Pine, an evergreen plant of the nat. ord. Ericaceæ, indigenous in all parts of the United States. The leaves are about 2 inches long, serrate above, wedge-shaped towards the base, having an astringent and bitter taste. Contains *Chimaphilin*, a yellowish crystalline principle, *Arbutin*, also crystalline but colorless, with tannic acid, etc.

Extractum Chimaphilæ Fluidum, *Fluid Extract of Chimaphila*,—Dose, ʒss–ij.

Decoctum Chimaphilæ, *Decoction of Chimaphila* (Unofficial),—1 to 17. Dose, ℥j–iij.

Chimaphila is a tonic, astringent diuretic, belonging to the same group as Buchu, Uva Ursi, Pareira and Scoparius. It is probably the most active diuretic among them, stimulating all the excretory organs but especially the kidneys. It is an agreeable tonic, excites the appetite and promotes digestion. The fresh leaves, bruised and applied to the skin, are rubefacient and vesicant, showing the presence of some irritant principle.

Chimaphila is a good diuretic in dropsy, and is efficient in several forms of chronic kidney disease with albuminuria, and in chronic catarrhal affections of the urinary passages, as hematuria, ischuria, dysuria and gonorrhœa. It is believed to check the secretion of uric acid, and should prove useful in gout and rheumatism. Externally, it has been applied to ulcers and tumors with benefit.

CHINOLINUM, Chinolin, Leucolin, C_9H_7N (Unofficial), a constituent of coal-tar oil—but may be obtained from Quinine or Cinchonine by their destructive distillation with potassium hydrate, and artificially prepared by heating Anilin or Nitro-benzol with glycerin in the presence of a dehydrating agent. Chemically, it is considered to be formed by a union of Benzene and Pyridine atoms. (Compare the article CINCHONA.) It is a colorless, oily liquid, strongly refractive, boiling at 460° F. without decomposition, turns dark on exposure to the air; soluble in alcohol, ether and carbon disulphide, sparingly so in water. It combines, like an alkaloid, with acids to form crystalline salts; all of which, except the tartrate, are very deliquescent.

Chinolini Tartras, *Chinolin Tartrate*, (Unofficial),—a white, micaceous, crystalline powder, of pungent odor and sharp taste, stable in the air and soluble in water. Dose, gr. v–xx.

Physiological Action and Therapeutics.

Chinolin is a valuable antiseptic, and antipyretic, being nearly as effective in this respect as Quinine, which it closely resembles in chemical character and physiological action. It is one of the most powerful antipyretics of the substances which have been discovered in the search for an artificial quinine (Hydroquinone, Antipyrin, Pyrocatechin, Resorcin, Thallin, Kairin, etc.). Chinolin has a very disagreeable taste and smell, and is irritant in action, hence the tartrate is preferred for medicinal use. It has been extensively used as an antipyretic in pneumonia, typhus, diphtheria, typhoid and other fevers, with varying success. In diphtheria, a 5 per cent. solution in weak alcohol is painted on the affected surface with great benefit. The tartrate has been used beneficially in neuralgia and whooping-cough, and as an antiperiodic in intermittents.

CHIRATA, Chirata, (*Chiretta*),—is the Indian plant *Swertia Chirata*, nat. ord. Gentianaceæ, occurring in bundles composed of all but the coarser woody stems. It is inodorous but intensely bitter, and contains *Chiratin* and *Ophelic Acid*, two amorphous, bitter principles, but no tannin. Dose of the powdered plant, gr. xv–xxx.

Extractum Chiratæ Fluidum, *Fluid Extract of Chirata*,—made with glycerin and diluted alcohol. Dose, ♏xv–xxx.

Tinctura Chiratæ, *Tincture of Chirata*,—10 per cent. Dose, ʒss–ij.

The action of this plant is that of a simple bitter, like its congener Gentian. It is an excellent tonic, in this respect rivalling Cinchona, and is used in India as a substitute for the latter. It is laxative and stomachic, diminishes flatulency and acidity, and is particularly serviceable in the dyspepsia of gouty subjects. As it contains no tannin, it may be administered with preparations of Iron.

CHLORAL, Chloral, *Chloral Hydrate*, $C_2HCl_3O + H_2O$,—is a crystalline solid, composed of Trichloraldehyde or Chloral with one molecule of water. It occurs in colorless, transparent, rhomboidal crystals, slowly volatilizing when exposed to the air; of aromatic, penetrating and slightly acrid odor, bitterish, caustic taste, and neutral reaction. It is freely soluble in water, alcohol, ether, chloroform, oils, etc.; liquefies when triturated with about an equal quantity of camphor, menthol, thymol or carbolic acid; melts at 136° F. and is decomposed by alkalies into Chloroform and a formiate of the alkaline base. Its aqueous solution becomes acid, but the alcoholic solution remains neutral.

Chloral itself, (Trichloraldehyde, C_2HCl_3O), is an unstable, oily, colorless fluid, formed by the action of chlorine upon alcohol, whence its name, Chlor-al. The Hydrate is the only official preparation.

The Dose varies much with individual susceptibility and with the presence or absence of cardiac and pulmonary disease. Death has been caused in several instances by gr. xxx, in one case by gr. x, and in another gr. vijss produced alarming symptoms, all being adults. On the other hand several hundred grains have been ingested at one time without lethal effects, and where tolerance has been established by habitual use, ʒ ij–ʒ iij are frequently taken without poisonous symptoms. An average dose for a healthy adult is gr. xv, for a child gr. j for each year of age up to gr. vj. It is best given in Syrup of Tolu.

Caution is necessary when prescribed in combination with alcoholic preparations, as Chloral Hydrate is then very apt to separate as an alcoholate, especially if the Bromides of Potassium or Sodium are used in the same mixture and if the solutions are at all concentrated. In this way great danger is incurred of giving a heavy overdose, as the alcoholate floats on the surface of the mixture, and the entire Chloral contained therein may be taken at a single dose.

Hypnotic Analogues of Chloral.

Amylene Hydrate, $C_5H_{12}O$, *Di-methyl-ethyl-carbinol* (Unofficial),—a tertiary alcohol, occurring as a clear, colorless fluid, of peculiar odor, soluble in 8 of water and readily miscible with alcohol. It is one of the most valuable hypnotics, in power standing between chloral and paraldehyde, but being much more agreeable to the taste and safer than either of those agents. Its action is exerted chiefly on the cerebrum in doses sufficient to produce profound narcosis; and in medicinal doses it leaves behind no unpleasant effects, and has no perceptible influence on the heart or respiration. By very large dosage the medullary centres are paralyzed, including those governing respiration and cardiac action. Dose, ʒ j–ʒ jss.

Cannabini Tannas, *Cannabin Tannate* (Unofficial),—is not more reliable than the Extract of Cannabis Indica, though devoid of the exciting qualities of the latter preparation. Dose, as a hypnotic, gr. ij–x, the average being gr. v. Fronmüller considers it a very useful hypnotic, powerful and not dangerous, not disturbing the secretions, nor leaving unpleasant after-effects, if used in proper doses. (See *ante*, page 168).

Chloralamid,—is described under its own title.

Chloral Butylicum, *Croton-Chloral*, (Unofficial),—is described under its own title.

Hyoscinæ Hydrobromas, *Hyoscine Hydrobromate*,—is an efficient hypnotic, with the advantage of being tasteless, and having a very small dose (gr. $\frac{1}{100}$–$\frac{1}{60}$), so that it may be given in tea, coffee, etc. It is apt to affect the head afterwards, and soon loses its power by repetition. In large doses it is a dangerous respiratory depressant. (See under HYOSCYAMUS.)

Hypnal is a combination of Antipyrin and Chloral, occurring as tasteless and odorless rhombic crystals, soluble in 6 of water, and credited with simultaneous action as a hypnotic and analgesic. Dose, gr. xv–xxx in aqueous mixture with some alcohol, flavored with syrup of orange. It is said to cause no gastric disturbance.

Although Chloral and Antipyrin are incompatible with each other, they form, when heated together, the above described compound, which resembles both and yet differs from each. Its chemical appellation is Tri-chloraldehyd-phenyl-dimethyl-pyrazolon, and its formula is $C_{13}Ch_3N_2H_{15}O_3$.

Hypnone, $C_6H_5(CO)(CH_3)$, *Phenyl-methyl-acetone*, (Unofficial),—a member of the Ketones, occurring above 70° F. as a colorless, mobile liquid, having a strong almond and orange odor. It is insoluble in water or glycerin, and is best given in capsules. It is a hypnotic, of only moderate intensity, but said to be especially useful in the insomnia of alcoholism. Its use is devoid of danger, and leaves behind no unpleasant effects, except a disagreeable odor of the breath, the drug being eliminated by the lungs as well as by the kidneys. In very large doses it has induced coma, followed by paralysis of the heart and respiration. Dose, ♏ v–x, in capsule, ♏ vij to ♏ viij being usually required.

Methylal, $CH_2(OCH_3)_2$, *Methylene-di-methyl Ether*, (Unofficial),—one of the products of the oxidation of Methylic Alcohol, occurring as a volatile, mobile liquid of pleasant, aromatic odor and taste, readily soluble in water, alcohol, etc. It is a local anæsthetic, and an efficient hypnotic, producing a deep sleep of short duration, with more or less general anæsthesia and lowered reflex excitability. It is depressant to the heart, respiration and body temperature, but in medicinal doses does not leave any bad after-effects. Dose, *per orem* ♏ iv–v, repeated thrice at short intervals.

Somnal, (Unofficial),—a liquid hypnotic, made by the union of Chloral, Alcohol and Urethan, is described under its own title.

Sulphonal, Trional and **Tetronal,** are synthetical hypnotics, described under the title SULPHONAL.

Urethan, *Ethyl Carbamate*, $NH_2CO_2C_2H_5$ (Unofficial),—occurs in crystals which are readily soluble in water, with scarcely any taste or odor, devoid of irritant action, and hence may be administered hypodermically. It is a pure hypnotic, but a mild one at best, and not so reliable as Paraldehyde or Chloral. It does not affect the circulation, nor does it depress (but rather stimulates) the respiration. It acts directly on the cerebrum, causing a sleep which closely resembles the normal, and has no unpleasant after-effects. In very large doses it slows the heart, lowers the temperature, and induces muscular resolution and general anæsthesia. In small animals it effectually antagonizes the action of Strychnine. Dose, gr. xv–ʒj, an average hypnotic dose being gr. xxx; but it is best given in 5-grain doses repeated frequently, as a large dose may cause vomiting. It is a safe and efficient hypnotic for children. (Squibb.)

PHYSIOLOGICAL ACTION.

Chloral is a powerful hypnotic, also an antispasmodic, an antiferment, a preventive of the coagulation of fibrin, indirectly an anæsthetic, and especially a depressant of the cerebral, medullary and spinal centres and of the cardiac muscle. It is more hypnotic than chloroform but less of an anæsthetic. Applied to the skin or mucous membranes a 1 per cent. solution (gr. v ad ℥j) is antiseptic, but strong solutions are irritant and vesicant, may produce sloughing ulcers, and if taken internally may excite gastritis with nausea and vomiting.

After a brief period of stimulation a medicinal dose depresses the heart and lowers arterial tension, diminishes oxidation and decreases the body temperature. On the brain cells it has a selective action, producing a deep sopor very like normal sleep, from which the patient may be awakened, but immediately falls asleep again, and which is not followed by headache or depression. This effect is considered by some authorities to be the result of cerebral anæmia produced by the drug. In some persons, instead of sleep it causes headache, insomnia and delirious excitement. It is not an anodyne, as it does not affect the conductivity of the sensory nerves, and does not interrupt the transmission of pain; but by overwhelming the centres it drowns the *consciousness* of pain, and is therefore indirectly anæsthetic. A toxic dose produces profound narcotism, abolishment of reflexes and sensibility, complete muscular relaxation, and a great fall of body temperature. Death may result in the chloral sleep from paralysis of the respiratory centre or the cardiac motor ganglia, or by sudden failure of the heart-muscle in cases of fatty degeneration or in old drunkards.

On the blood its action is to increase the fluidity, crenate the red corpuscles, and to destroy the leucocytes if used in large quantity. It is rapidly diffused and is excreted by the kidneys partly unchanged, but chiefly as urochloralic acid, producing some diuresis,—also by the skin, causing various eruptions if used for any lengthened period. It has been held that the blood, being an alkaline fluid, decomposes it, setting free chloroform, but there are many facts against this theory.

THE CHLORAL-HABIT produces a state of marked anæmia and muscular weakness, especially of the legs (DaCosta); its subject presenting a weak, irritable, often irregular heart, deranged hepatic functions, jaundice, bileless stools, perhaps purpura and sloughing of a finger from decreased blood-supply. Its votaries are on the border of insanity, excitable, uncontrollable in speech and action, talking in a silly manner and very volubly, and showing a marked loss of power of the limbs, so much so as to simulate paralysis thereof. Many cases of insanity have their origin in chloralism.

CHLORAL AND ATROPINE, though antagonistic in their action on the spinal cord, both produce motor paralysis, the former by paralyzing the cord, the latter by direct paralysis of the motor nerves.

Antagonists and Incompatibles.

Atropine antagonizes its cardiac, respiratory and spinal depression, and should be injected in small doses frequently repeated, until its effects are apparent. *Morphine* administered with Chloral antagonizes the tendency to cardiac failure, while synergistic to the hypnotism. While Chloral is the antagonist to Strychnine, opposing the spinal action of that drug, the reverse is only true to a very limited extent. Heat is a necessary application, to maintain the body-temperature, and artificial respiration should be practiced if required. All alkalies are incompatible.

THERAPEUTICS.

Chloral Hydrate is of great value as a hypnotic and antispasmodic, but must be cautiously used if at all in old alcoholics or persons with weak or fatty hearts, atheromatous vessels or advanced pulmonary disease. In combination with Potassium Bromide it is much used in asylum and general practice, and equally abused, both drugs being active cardiac poisons. It is by far the best hypnotic in acute mania and in delirium tremens, but has been too incautiously employed therein. The condition of alcoholic intoxication seems, however, to antagonize its depressant action on the heart to a great extent, even in old topers, for 30-grain doses, repeated twice within 7 or 8 hours, are commonly used in inebriate asylums, and by police surgeons, for the purpose of straightening up a case of acute alcoholism, without fatal results from its direct action. Chloral is highly serviceable in fevers, when high temperature exists with excitement, restlessness and a sthenic condition, as it lowers temperature and prevents the coagulation of fibrin. In the algid stage of cholera and in violent cases of cholera morbus it has been injected hypodermically in 15-grain doses with extraordinary efficacy. In sea-sickness small doses (gr. v) two or three times a day are generally very efficient. In obstetrics it is used to relieve suffering, relax the os uteri, palliate convulsions and relieve after-pains. For nocturnal epilepsy a full dose at bedtime is a useful palliative. In neuralgia it may be triturated with camphor and applied over the course of the affected nerve. Tetanus is best treated by chloral and potassium bromide. Chloral is an excellent remedy for infantile convulsions and colic, chorea, spasmodic asthma, whooping-cough, laryngismus stridulus, and in the first stage of diphtheria, but not when the heart is weak. In cancers and ulcers a 25 per cent. solution is a good antiseptic and anodyne application. In Strychnine poisoning Chloral is the antagonist. It is generally given by the mouth in dilute solution with some simple elixir, syrup of tolu, or cinnamon-water, but is well absorbed by the rectum. Its hypodermic administration is liable to result in great local irritation and even sloughing ulcers.

The mixture of Chloral and Camphor is a good local application in superficial neuralgia, and may be painted over the larynx for spasmodic cough. It makes a good remedy for internal use in colic, cholera and cholera morbus, especially if combined with Morphine.

CHLORAL BUTYLICUM, Butyl-chloral Hydrate, *Croton-chloral,* $C_4H_5Cl_3O,H_2O$ (Unofficial),—is formed by the action of Chlorine upon Aldehyde, then adding to the Butyl-Chloral thus produced the necessary water. It occurs in crystalline scales, insoluble in chloroform, sparingly soluble in water, (1 in 100), but freely soluble in alcohol, hot water and glycerin, (1 in 4). Dose, gr. v–xx, in syrup or pill;—but the best method is to give 5 grains every half-hour until 20 grains have been taken or relief afforded.

The action of Croton-chloral closely resembles that of chloral, but it is feebler as a hypnotic, less depressant to the heart, and generally less poisonous, but more disagreeable to the taste. It has a specific paralyzant power over the fifth nerve, and over its distribution causes an anæsthetic condition long before it produces general anæsthesia (Liebreich).

It has been used with benefit in various neuralgiæ, especially tic-douloureux, also in sciatica and dysmenorrhœa. All statements concerning the action and therapeutics of this drug are to be received with hesitation, as wide differences therein are reported by the best authorities.

CHLORALAMIDUM, Chloralamid, *Chloral Formidate,* (Unofficial),—is chemically a union of Chloral anhydride (C_2HCl_3O) with Formamide ($CHO.NH_2$). It is a proprietary drug, having been both patented and trade-marked, wherever possible, by its proprietor and exclusive manufacturer, Schering, of Berlin. It occurs as colorless, faintly bitter, odorless crystals, which are decomposed in hot water or warm solutions. Soluble in 20 parts of cold water, or in 1½ of alcohol;—rapidly decomposed by caustic alkalies and slowly by alkaline carbonates.

The Dose is put at from 10 to 60 grains. The average adult hypnotic quantity about 30 grains, given in a teaspoonful of whiskey or brandy, or in any alcoholic compound;—for example, 30 grains in 2 drachms each of Tinct. Cardamom. Co. and Elixir Simplex, as one dose. By some observers a 45-grain dose is considered the limit of safety and equal to 30 grains of Chloral hydrate; by others this amount is considered necessary for its certain hypnotic action. Sixty grains have frequently been administered, and in one case 140 grains were taken at one dose, without producing unpleasant symptoms;—but, as Dr. Steele has pointed out, the slow solubility of the drug in the watery contents of the stomach must be taken into account, and when considering its action, the menstruum and the condition of the gastric mucous membrane should be known.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The action of Chloralamid is essentially a hypnotic one; it is extensively advertised as the least depressant and most efficient sleep-producer at our command,—without unpleasant after-effects from ordinary doses, except in 2 per cent. of the cases in which used, 1 per cent. having gastric and the other 1 per cent. having cerebral symptoms; while these were always slight unless the dose of 30 grains had been exceeded. The more severe and unusual effects (from doses above 30 grains) are vertigo, thirst, nausea, dry mouth, vomiting, anorexia, slight delirium, cardiac weakness, rapid and feeble pulse, and restlessness. The drug does not seem to have any cumulative action, nor any tendency to provoke a habit of using it. It is also credited with considerable analgesic power in certain conditions (see below), as well as with anti-dyspnœic and anti-hydrotic action.

The main field for the use of Chloralamid has been in the treatment of insomnia, particularly the simple or idiopathic form, and when not due to excitement or severe pain, but from nervousness, hysteria, chronic alcoholism, and similar states; also in that accompanying typhoid fever, asthma (both cardiac and bronchial), organic heart disease, the opium habit, and diabetes mellitus (Steele). It is less effective in organic nervous affections and mental disorders, and is useless in these conditions when the insomnia is due to excitement, hallucinations, or severe pain.

As an analgesic, it has lessened and checked the pains of aneurism, carcinoma of the stomach and liver, sarcoma of a rib, erysipelas, rheumatic fever, gall-stone, etc.;—and in dysmenorrhœa has given entire relief, used just as the painful period approached, in a single dose of 30 grains. It has been reported curative of chorea, in doses of gr. 15 thrice daily for five days, in a boy of eleven years; and in a girl who had resisted all other treatment for the same affection, it was successful in 8 days.

Compared with Sulphonal, Chloralamid is preferred for all cases in which collapse is feared, by reason of its apparent freedom from depressant action on the cardiac centres or the respiratory mechanism. In phthisis it has proven efficient against the most obstinate night-sweats, while at the same time securing rest in cases in which the cough was not very violent. To secure the best results as a hypnotic, the drug should be given about an hour and a half before sleeping-time, in a dilute alcoholic menstruum, and on a stomach containing little or no watery fluids to interfere with its solution and absorption.

CHLOROFORMUM, Chloroform, $CHCl_3$ (or $CHCl_2Cl$), Absolute Chloroform, the *Terchloride of Methyl,* or the *Chloride of Bichlorinated Methyl,* (Di-chlor-methyl Chloride),—is formed by the substitution of 3 atoms of Chlorine for 3 of Hydrogen in Methyl Hydride (marsh-gas, CH_4). In practice it is obtained from Ethylic Alcohol or Methylated

Spirit by the action of Chlorinated Lime, or from Chloral by an alkaline hydrate, and is known chemically as *Normal Chloroform*. If prepared from Methylic Alcohol (wood-spirit) it is called *Methylic Chloroform*, and is purified with great difficulty. The object of purification is to remove the chlorinated pyrogenous oil. Absolute Chloroform has a sp. gr. of 1.500, and decomposes easily in sunlight or diffused daylight, but when reduced to a sp. gr. of 1.485 to 1.490 by alcohol it will keep well. The official form is—

Chloroformum, *Chloroform*, $CHCl_3$,—a liquid consisting of 99 to 99.4 per cent. by weight, of absolute Chloroform, and 1 to 0.6 per cent. of Alcohol. A heavy, clear, colorless, mobile and diffusible liquid, of characteristic, ethereal odor, a burning, sweet taste, neutral reaction; volatile, not inflammable; soluble in 200 of water, freely so in alcohol or ether, also in oils, benzol or benzin. Sp. gr. not below 1.490 at 59° F., or 1.473 at 77° F. Dose, internally, ♏ ij–xx, for inhalation ʒj, repeated until the desired effect is produced.

Chloroformum Venale, *Commercial Chloroform*, (Unofficial),—is a liquid containing at least 98 per cent. of Chloroform, and having a sp. gr. not lower than 1.470. It contains sundry Hydrocarbons, free Chlorine, Aldehyde and Hydrochloric Acid, and is used only for external applications, or to make the purified article.

Preparations.

Aqua Chloroformi, *Chloroform Water*,—a saturated solution, prepared by agitating an excess of chloroform in distilled water and pouring off the needed quantity of the solution.

Emulsum Chloroformi, *Emulsion of Chloroform*,—has of Chloroform 4, Expressed Oil of Almond 6, Tragacanth 1½, Water to 100. Dose, ʒj–℥j.

Spiritus Chloroformi, *Spirit of Chloroform*,—has of Chloroform 6, Alcohol 94. Dose, ♏ x–ʒj, well diluted.

Linimentum Chloroformi, *Chloroform Liniment*,—has of Chloroform 30, Soap Liniment 70.

Linimentum Chloroformi Compositum, *Compound Chloroform Liniment*, (Unofficial),—has of Chloroform ℥j, Oil of Turpentine ℥j, Tincture of Opium ℥ss, Tincture of Aconite ʒij.

Chlorodyne, (Unofficial),—is a celebrated secret mixture, put forth by Dr. J. Collis Browne, of London, and since imitated by many others. It is supposed to contain Chloroform, Ether, Morphine, Cannabis Indica, Hydrocyanic Acid, Capsicum, etc., and is powerfully anodyne, antispasmodic and narcotic, and therefore highly dangerous in non-professional hands. Dose, ♏ x–xxx, according to the quantities of Morphine and Chloroform present, these being the active agents in the preparation. A comparison of the principal formulæ which have been used in imitation of Browne's Chlorodyne is given in the appendix, and will show the wide differences between them. A list of 25 formulæ for Chlorodyne was published in the *Therapeutic Gazette* for October, 1883.

Tinctura Chloroformi et Morphinæ (B.P.),—has been recently made official as a substitute for Chlorodyne. Each dose of 10 minims contains of Chloroform ♏ 1¼, Ether ♏ ½, Alcohol ♏ ¼, Morphine Hydrochlorate gr. $\frac{1}{48}$, Dilute Hydrocyanic Acid ♏ ⅝, Oil of Peppermint ♏ $\frac{1}{25}$, Fluid Extract of Liquorice ♏ 1¼, Treacle and Syrup q. s.

Tinctura Chloroformi Composita (B. P.),—has of Chloroform 2, Alcohol 8, and Compound Tincture of Cardamoms 10. Dose, ♏ xx–ʒj.

Anæsthetic Mixtures containing Chloroform,—see under ÆTHER, *ante*, page 87.

Some Unofficial Chlorinated Anæsthetic Compounds.

Ethylene Bichloride, *Dutch Liquid*, *Chloric Ether*, $C_2H_4Cl_2$,—is a rapid and powerful anæsthetic, probably safer than Chloroform and less so than Ether. It always paralyzes the respiratory centre before the heart, so that its effects may be easily watched and controlled. This is the substance which Guthrie supposed he had obtained when he discovered Chloroform.

Ethylidene Chloride, *Chlorinated Muriatic Ether*, $CH_3,CHCl_2$,—is a mixture of varying sp. gr., and is not inflammable. It closely resembles Chloroform both physically and physiologically, but is less depressant to the heart, consequently safer, and recovery from its effects is very prompt.

Methyl Chloride, CH_3Cl,—a colorless gas, slightly soluble in water, of sweetish odor and taste, inflammable, burning with a greenish flame. Cold liquefies it, and the liquid boils at —7.6° F. It is used locally in neuralgiæ to produce intense cold, and with remarkable success.

Methylene Bichloride, *Dichloro-methane*, CH_2Cl_2,—is an effective anæsthetic which it was supposed would displace Chloroform as being much safer. Dr. Richardson introduced it and Sir Spencer Wells advocates its use, but though little used as compared with other anæsthetics several deaths have occurred from its employment. It kills by paralyzing the heart.

Carbon Tetrachloride, CCl_4, —is less irritant than Chloroform, but far more dangerous to the heart.

Physiological Action.

The action of Chloroform is similar to that of Ether (see *ante*, page 87) with several important differences, as follows: It is more irritant to the mucous membranes, and if swallowed undiluted it produces violent gastroenteritis, which becomes apparent after the subsidence of the profound narcotism which at first follows its ingestion in quantity. A dose of ℥j internally will cause death. It is less of a stimulant than Ether, and more depressant to the heart and circulation. It clots the blood outside the body, making a mass like sealing-wax.

Inhaled for anæsthetic purposes it is considered much more dangerous than Ether, from its direct paralyzant effect on the heart. Its vapor requires admixture with 96½ per cent. of air to produce anæsthesia with safety, according to the authorities on the subject. As compared with Ether its vapor is less irritant to the air passages, uninflammable, more pleasant, more prompt in action, has a shorter stage of excitement and a more profound narcosis, and produces much less vomiting. Its mortality is greater, being about 1 to 3000, against 1 in 16,000 for Ether, fatal cases being constantly reported, none of which, however, were in obstetrical practice.

The result of the labors of the Hyderabad Chloroform Committee, conducted under the direction of Dr. Lauder Brunton, show that Chloroform and Ether act in the same way upon the heart and respiration, both paralyzing the respiratory centre before the heart,—Chloroform acting more quickly and more powerfully than Ether in both directions. This would necessitate that the person administering chloroform as an anæsthetic should give his undivided attention to the respiration, the pulse being of secondary importance as long as the breathing is normal. Prior to this investigation it was taught that death from Chloroform-inhalation is almost always sudden and by cardiac paralysis,—from Ether slow and usually by paralysis of respiration.

[For modes of death from anæsthetic vapors and the treatment of dangerous symptoms, see *ante*, page 88.]

Antagonists.

There is no chemical antidote. If swallowed, the stomach should be evacuated and the case treated as one of poisoning by an irritant. Amyl Nitrite by inhalation, and Atropine hypodermically, to sustain the heart.

THERAPEUTICS.

Chloroform is used for the same conditions as is Ether. It is much employed in liniments as a rubefacient and anodyne application, as in pruritus, rheumatic and neuralgic pains, etc. Internally it is advantageously administered in true cholera, in which it has been probably more efficacious than any other single remedy; in cholera morbus, vomiting, colic, dysmenorrhœa; in hepatic colic, and other pains of internal and spasmodic character. In sciatica, tic-douloureux and other neuralgiæ of important nerves the deep injection of ♏ v–xv of pure Chloroform in the vicinity of the nerve is highly recommended, though it may cause dangerous local disturbance. The writer has, in several cases of severe supra-orbital neuralgia, injected two or three minims of Chloroform into the vicinity of the supra-orbital nerve just above its foramen of exit, with the most gratifying permanent results, though severe local pain and considerable swelling were experienced for several days. The vapor in small quantities inhaled from warm water is useful in many neuroses, as hay-fever, spasmodic asthma, reflex cough.

As an Anæsthetic the use of Chloroform is decreasing every year in favor of Ether, except for young children and in obstetrical practice. Its vapor being four times denser than air, and the rule for its effective use requiring fully 96½ per cent. of air with it, its administration according to the orthodox fashion requires most careful management, and should never be attempted in any but the recumbent posture. An ounce of Brandy and a hypodermic injection of Morphine, gr. $\frac{1}{4}$, with Atropine, gr. $\frac{1}{120}$, given 20 minutes before commencing the inhalation, are means of great utility in sustaining the heart and respiration, as well as in rendering the anæsthesia more profound. No operation, especially on parts supplied by the fifth nerve, should be undertaken during partial chloroform anæsthesia, for the reasons given on page 88.

Syme administered Chloroform in five thousand cases without a single death therefrom. He ascribed this excellent record to his adherence to the following rule: "Never mind the pulse, never mind the heart, leave the pupil to itself, but keep your eyes on the breathing, and if it becomes embarrassed to a grave extent, pull the tongue well out with an artery forceps."

Dr. Sayre administers Chloroform in a manner which is calculated to strike terror to the heart of an emotional observer who is impressed by the orthodox rule of 96½ per cent. air with 3½ per cent. of the anæsthetic as the only safe proportion. Having been made familiar with the practice of Dr. Sayre through observance of his method as employed by some of his pupils, the writer sought for more direct instructions from that distinguished surgeon, and received from him a letter from which the following paragraphs are extracted:—

> "I have employed no other method for more than twenty years, have used it in this manner in some thousands of cases without the least appearance of danger, and can therefore speak with confidence as to its safety.
>
> "My plan is simply to anæsthetize the patient with the *smallest amount of Chloroform possible;* and as *Oxygen* is the ANTIDOTE to the anæsthetic I *exclude all air* that is *not impregnated with the anæsthetic.*
>
> "In this manner a very few inspirations will produce immediate anæsthesia without the muscular struggling which always follows when pure air is admitted with the chloroform. I always measure my dose with the same care as if I were administering Arsenic, Strychnine, Corrosive Sublimate, or any other potent agent; and then I know what I am doing. If by accident there should be some peculiarity about the patient, making him unduly susceptible, a few artificial respirations would soon remove the influence of the few drops which had been inhaled, and thus all danger can be avoided. Five, ten, or twenty drops of Chloroform administered in this manner is all that is requisite to produce immediate and profound anæsthesia. I have explained my method hundreds of times at my clinical lectures in Bellevue Hospital, many of which have been published at different times in different medical journals by various persons who have made stenographic reports of my lectures. In the 'Transactions of the International Medical Congress,' held in Philadelphia in 1876, is a verbatim report of my remarks on this subject made while I was performing an exsection of the hip-joint in the hospital before the Congress."

The writer can add his testimony to that of the above letter respecting the thorough anæsthetic effect and freedom from unpleasant symptoms observed in a large number of cases in which Chloroform was administered in the manner described under his observation during several years past. As to the safety of this method over the ordinary way no conclusion can be reached without the results of many thousands of examples in the hands of many different observers.

CHLORUM, Chlorine, Cl,—is a greenish-yellow gas having a suffocating odor, and belonging to the group of *Halogen* elements, so named (from ἅλς, the sea) because its most important members, Chlorine, Bromine and Iodine, are derived from the ocean, Chlorine being obtained from sea-salt, Bromine from sea-water, and Iodine from sea-weed. Chlorine itself is not official, but is represented in medicine by 2 *Chlorates* and 8 *Chlorides* (of Potassium, Sodium, Ammonium, Calcium, Iron, Gold, Zinc and Mercury), which are described under the titles of their respective bases; also by Hydrochloric Acid, Chloral, Chloroform, etc., and by the following preparations which furnish it.

Preparations.

Aqua Chlori, *Chlorine Water,*—is an aqueous solution of Chlorine, containing at least 0.4 per cent. of the gas; and is prepared by heating together Manganese Dioxide 10 parts and Hydrochloric Acid 35 parts, then saturating 400 of distilled Water with the gas so obtained. It is a clear, greenish-yellow liquid, of suffocating odor and disagreeable taste. Dose, ʒj–℥ss, well diluted, as a lotion or spray; internally, ♏ x–xx, in water.

Chlorine Water may be extemporaneously prepared by mixing in a mortar Chlorate of Potassium 40 grains and Hydrochloric Acid ½ ounce, and adding a pint of distilled water by agitation during the evolution of the vapors. If done in a closed vessel danger may arise from the explosive gas, Cl_2O_4, which is liberated at the same time. It should be quickly bottled.

Calx Chlorata *Chlorinated Lime*, ("*Chloride of Lime*"),—is a compound resulting from the action of Chlorine upon Calcium Hydrate, and containing at least 35 per cent. of available Chlorine. It is obtained by exposing slaked Lime to the action of Chlorine gas as long as the latter is absorbed, and should not be confounded with Calcium Chloride (see *ante*, page 160). It occurs as a whitish, dry powder or friable lumps, gradually decomposing in the air, of saline, disagreeable taste and a feeble Chlorine odor, partially soluble in water and in alcohol, and when dissolved in dilute Hydrochloric acid gives off Chlorine gas. Dose, gr. iij–vj in water; for external use a 1 to 3 per cent. solution. *Liquor Calcis Chloratæ*, B. P., is a solution of 1 pound in 1 gallon of water.

Liquor Sodæ Chloratæ, *Solution of Chlorinated Soda, Labarraque's Solution*,—a pale-greenish liquid, of faint Chlorine odor, and alkaline taste and reaction; prepared by adding together watery solutions of Sodium Carbonate 150, and Calx Chlorata, 75, each in water, then adding Water up to 1000. Is an aqueous solution of several chlorine-compounds of sodium, containing at least 2.6 per cent., by weight, of available chlorine. Dose, ♏x–ʒj in 20 parts of water.

PHYSIOLOGICAL ACTION.

Chlorine is actively irritant to the skin and mucous membranes. Locally applied it produces heat, burning and even vesication. Inhaled in any quantity it causes cough, sneezing and spasm of the glottis, also inflammation of the air-passages and of the lungs. It is the most powerful of all disinfectants and deodorants, also an antiseptic and antifermentative agent of the highest activity. Its power in all these respects is due to its affinity for hydrogen, decomposing all bodies in which hydrogen enters as a molecular constituent, forming chlorhydric acid and setting oxygen free in its nascent form (ozone). Used internally it has the same local action on the parts with which it comes in contact, and on reaching the stomach in dilute solution it is converted into hydrochloric acid and chlorides, losing all further action on the body in its own character.

Antidotes.

Ammoniacal Vapors inhaled after Chlorine to form Ammonium Chloride. Ammonium Sulphide has a similar reaction, but should be inhaled in great moderation. *Albumen* is the antidote if Chlorine preparations have been taken into the stomach, and a little Aqua Ammoniæ, sufficiently diluted, may also be administered with advantage.

THERAPEUTICS.

The Chlorinated preparations are used as disinfectants and deodorizers of rooms, drains and discharges from the body. They are rarely used about the person or clothing of patients by reason of the irritation produced by them when inhaled, and their power to destroy the color of fabrics. In dilute solution they are well employed as local applications in aphthæ, gangrene, scarlet fever and diphtheria, in which their principal action is to destroy fetor. The same may be said of their use in sloughing ulcers and gangrenous wounds, foul discharges, etc., as they ar rarely employed about the person in sufficient strength to have any destructive effect on disease-germs. A strong solution of Chlorinated Sod is a good application to bites of serpents and insects, to prevent infectio by the syphilitic poison, and to wash the hands after contact with infectious material.

A combination of Potassium Chlorate and Tinctura Ferri Chloridi makes a solution of Chlorine, Euchlorine, Potassium Chloride and Ferri Chloride, when diluted with water, and gives one of the best and mos innocuous solutions of antiseptics. It makes an excellent gargle for sor throats, simple or diphtheritic. Glycerin should never be added to it, a the resulting mixture will be liable to explode violently.

These preparations have been administered internally in septic diseases low fevers, etc., but without producing any marked beneficial results.

To disinfect unoccupied rooms all means of exit should be stopped up then a pound of Chlorinated Lime sewed loosely in a strong canvas ba is immersed in a mixture of a pint and a half of common Muriatic Aci with 4½ pints of water, and left 24 hours.

CHONDRUS, Irish Moss, *Carragheen,*—consists of two sea-algæ, *Chondru crispus* and *Gigartina mammilosa,* dried and bleached. Is horny, translucent, pal yellowish-white, swelling in water, of sea-weed odor and mucilaginous, saline taste. O boiling with 30 parts of water for ten minutes it yields a solution which gelatinizes o cooling. It contains 90 per cent. of mucilage with traces of Iodine and Bromine, als 1 per cent. of Nitrogen. There are no official preparations. A jelly or blanc mang may be prepared by boiling ℥ij in ℥xxxiv of water for an hour, straining and addin ℥iij of sugar while hot. Dose, indefinite.

Irish Moss is a demulcent and nutrient substance of some slight value in bronchial an catarrhal affections. Having no starch in its composition it is not so valuable as Icelan moss (Cetraria) as an article of food for the sick.

CHRYSAROBINUM, Chrysarobin,—is a mixture of proximate principles e tracted from *Goa-powder,* a substance found in cavities formed by decay in the wood the trunk of *Andira Araroba,* a Brazilian tree of the nat. ord. Leguminosæ. It is commonly misnamed "Chrysophanic Acid" (which is one of the constituents of Rheum)- though easily converted into that substance. Occurs as an orange-yellow powder, odo less and tasteless, nearly insoluble in water and alcohol, but readily soluble in ether, solu tions of alkalies and sulphuric acid. Dose, gr. ⅛-gr. xx.

Preparation.

Unguentum Chrysarobini, *Chrysarobin Ointment,*—Chrysarobin 5, Benzoinate Lard 95 parts. Should be diluted for average use from 1 to 3 times.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

In 20-grain doses Chrysarobin is a gastro-intestinal irritant, producing large, water bilious stools, with repeated vomiting but not much nausea. Locally it produces diffus dermatitis often followed by follicular and furuncular inflammation. It stains the skin dark yellowish-brown color, which may be removed by a weak solution of chlorinate lime. The use of this remedy is confined to superficial parasitic skin diseases of vegetabl origin, and for psoriasis, in the latter affection being the best remedy known. It may b used in weak ointment locally, and internally in ⅛-grain doses.

CIMICIFUGA, Black Snake-root, *Black Cohosh,*—is the rhizome and roots of *Cimicifuga racemosa*, a plant of the nat. ord. Ranunculaceæ, native in the United States. Rhizome horizontal, 2 inches long or more, about 1 inch thick, with numerous upright or curved branches. Rootlets numerous, containing a ligneous cord which branches into four or five rays. Contains a *Volatile Oil* when fresh, resin, tannic and gallic acids, also an acrid, crystallizable, neutral principle. *Cimicifugin* or *Macrotin* is an impure resin obtained by precipitation from a concentrated tincture by the addition of water. The active principle has not been isolated.

Preparations.

Extractum Cimicifugæ, *Extract of Cimicifuga.*—Dose, gr. j–v.
Extractum Cimicifugæ Fluidum, *Fluid Extract of Cimicifuga,*—alcoholic. Dose, ♏ v–xx.
Tinctura Cimicifugæ, *Tincture of Cimicifuga,*—20 per cent. Dose, ♏ x–ʒj.
Macrotinum, *Macrotin,* (Unofficial).—Dose, gr. ss–ij.

PHYSIOLOGICAL ACTION.

Cimicifuga is stomachic, antispasmodic, aphrodisiac, diaphoretic, diuretic and expectorant. Its taste is bitter and nauseous, resembling that of Opium. It acts on the heart and circulation similarly to Digitalis, and on unstriped muscular fibre like Ergot, but is much feebler in activity than either of these agents. Small doses stimulate digestion and secretion, the generative function and the menstrual flow, and especially the secretions of the bronchial mucous membrane and the kidneys. Full doses slow the heart while increasing its force, raise arterial tension and stimulate uterine contraction. Large doses dilate the pupils and produce dimness of vision, vertigo, intense headache, nausea, vomiting, and in some persons soporific and anodyne effects.

THERAPEUTICS.

Cimicifuga closely resembles Digitalis in action, but it is safer, and should be more frequently used when the latter drug is indicated. In cardiac diseases it is very efficient, especially in weak or fatty heart where Digitalis would be dangerous. It is a good stomachic tonic, particularly in the irritable dyspepsia of alcoholism. As an expectorant it is used in acute and chronic bronchitis. It is a good nerve-tonic in delirium tremens, and in functional impotence it is remarkably efficient. In rheumatism of the localized muscular variety, as lumbago, torticollis, pleurodynia, intercostal rheumatism, etc., it is one of the most efficacious remedies, having a strong affinity for the muscular system. Neuralgias of various kinds are benefited by it, particularly ovarian neuralgia. Chorea about the age of puberty is one of the affections in which it is most efficient, and the same may be said of the hysterical form of this disease.

Many uterine disorders are remarkably benefited by Cimicifuga, such as amenorrhœa, neuralgic and congestive dysmenorrhœa, subinvolution, spinal irritation due to some obscure sympathetic or neuralgic affection of the womb, sympathetic pains and neuralgiæ arising from the so-called irritable womb, passive menorrhagia, etc. In obstetrics it gives excellent results when used to initiate uterine contractions, to check hemorrhage, and to allay afterpains and nervousness after delivery. In puerperal mania and peritonitis its good effects are frequently remarkable, and in puerperal hypochondriasis it is strongly recommended by very high authority.

CINCHONA, Peruvian Bark.—The Cinchona tree belongs to the nat. ord. Rubiaceæ and is a native of the eastern slope of the Andes, but has been largely planted in India, Ceylon, Java and Burmah, with the result of improving the quinine-yielding value of many species by cultivation. In late years the test of appearance has given way to that of assay in judging of the various barks of commerce, and only those are official which yield 5 per cent. of total alkaloids of which at least 2½ per cent. must be Quinine. Yellow bark contains most Quinine (as high as 9 per cent. having been obtained from one specimen), pale bark contains most Cinchonine and least Quinine, while red bark contains these alkaloids in about equal proportions. The Columbian varieties afford the largest percentage of Cinchonidine.

The principal varieties of the sub-order Cinchoneæ, the barks of which are found in commerce and used by manufacturers of the alkaloids, are—

Cinchona Calisaya, *Yellow Bark,*—from Peru, Bolivia and India.
Cinchona Succirubra, *Red Bark,*—from Ecuador, Java and Ceylon.
Cinchona Condaminea, *Pale Bark,*—from Ecuador and Peru.
Cinchona Pitayensis, *Pitaya Bark,*—from New Granada.
Cinchona Micrantha, *Gray Bark,*—from Peru and Bolivia.

Altogether there are some 31 species acknowledged by botanists, and the list is constantly increasing, from the tendency of the different trees to hybridize. Several trees formerly acknowledged as Cinchonas are now placed in the genus Cascarilla, but their barks are to be found on the market. Cuprea bark is from trees of the genus Remijia, growing in Columbia; it contains Quinine and a peculiar alkaloid, *Cinchonamine*, but no Cinchonidine.

OFFICIAL SPECIES.

Cinchona, *Cinchona,*—is the bark of *Cinchona Calisaya, Cinchona officinalis,* and of hybrids of these and of other species of Cinchona, yielding, when assayed by a prescribed process, not less than 5 per cent. of total alkaloids, and at least 2½ per cent. of Quinine.

Cinchona Rubra, *Red Cinchona*,—is the bark of *Cinchona Succirubra*, containing not less than 5 per cent. of its peculiar alkaloids. From it is prepared the Compound Tincture of Cinchona. Occurs in brown-red quills and flat pieces of various sizes, with ridges and warts on outer surface, coarsely striated on inner surface.

Cinchona Flava, *Yellow Cinchona, Calisaya Bark*,—is the bark of *Cinchona Calisaya*. Occurs in tawny-yellow, flat pieces or quills, ridged exteriorly, finely striated on inner surface, breaking with a transverse fracture showing numerous rigid fibres in bundles or radial rows.

Bark may be administered in doses of gr. x–ʒj, but it is never used now in substance, being too bulky and disagreeable.

COMPOSITION OF CINCHONA.

The bark contains 21 natural alkaloids (of which 4 are official), 8 artificial alkaloids, 2 simple acids, 2 tannic acids, a resinoid and coloring-matter, as follows:—

Quinine, $C_{20}H_{24}N_2O_2$,—a strong base, fluorescent, the most valuable of all the alkaloids; heated with glycerin to 374° F., it is converted into the isomeric base *Quinicine*.

Quinidine, $C_{20}H_{24}N_2O_2$,—isomeric with Quinine, fluorescent, probably the most powerful as an antiperiodic, but existing in very small quantity.

Cinchonine, $C_{20}H_{24}N_2O$,—the least active of the official four, having about half the therapeutic power of Quinine. Not fluorescent.

Cinchonidine, $C_{20}H_{24}N_2O$,—isomeric with Cinchonine, not fluorescent, one of the most powerful of the alkaloids.

Kinic and Kinovic Acids,—are combined in the bark with the alkaloids. The former is used to make a Kinate of Quinine, and the latter occurs in non-official pharmacy as Kinovate of Lime, an ingredient in Deloudre's Extract, which is used in Europe and India for dysentery.

Kino-tannic and Kinovo-tannic Acids,—give to bark its peculiar and powerful astringent qualities. They have not been fully studied.

Kinovin,—is a bitter amorphous resinoid, which is resolvable into Kinovic Acid and sugar. It is soluble in alcohol, but not in water.

Cinchona Red,—a reddish-brown, insipid, inodorous substance.

[The other alkaloids are of no interest medicinally.]

Preparations of the Bark.

Extractum Cinchonæ, *Extract of Cinchona*.—Dose, gr. j–v.

Extractum Cinchonæ Fluidum, *Fluid Extract of Cinchona*.—Dose, ♏x–ʒj.

Tinctura Cinchonæ, *Tincture of Cinchona*,—20 per cent. Dose, ʒss–ij.

Tinctura Cinchonæ Composita, *Compound Tincture of Cinchona*,—made from Red Cinchona—strength 10 per cent. Contains Bitter Orange-peel 8, and Serpentaria 2 per cent. Dose, ʒj–iv.

Infusum Cinchonæ, *Infusion of Cinchona*,—has of Cinchona 6, Aromatic Sulphuric Acid 1, Water to 100. Is the only official infusion containing this acid. Dose, ʒj–℥j, or more.

Huxham's Tincture of Bark, 1788 (Unofficial), is still used. Red Cinchona ℥iv, Orange peel ℥iij, Serpentaria gr. lxxx, Spanish Saffron gr. clx, Cochineal gr. lxxx, Brandy ℥xl, digested for 4 days, expressed and filtered. Dose, ʒss-ij.

Quinine and its Salts.

Quinina, *Quinine*, $C_{20}H_{24}N_2O_2 + 3H_2O$,—a white, amorphous or minutely crystalline powder, of alkaline reaction and very bitter taste, soluble in 1670 of water and 6 of alcohol at 59° F., in 23 of ether, 5 of chloroform, and readily in dilute acids. Dose, gr. j–xx, or xl in special cases. Is insoluble in saliva.

Quininæ Sulphas, *Quinine Sulphate,* $(C_{20}H_{24}N_2O_2)_2.H_2SO_4 + 7H_2O$,—very light, snow white, fragile crystals, of very bitter, persistent taste, soluble in 740 of water and 65 of alcohol at 59° F., in 30 of boiling water, 3 of boiling alcohol, also in acidulated water. Dose, gr. j–xx, or even gr. xl in special cases.

Quininæ Bisulphas, *Quinine Bisulphate,* $C_{20}H_{24}N_2O_2.H_2SO_4 + 7H_2O$,—clear, colorless, efflorescent crystals or small needles, of very bitter taste and strongly acid reaction, soluble in 10 of water with blue efflorescence, and in 32 of alcohol, at 59° F. Dose, gr. j–xxx, or even gr. lx in special cases.

Quininæ Hydrobromas, *Quinine Hydrobromate,* $C_{20}H_{24}N_2O_2HBr + H_2O$,—colorless needles, of very bitter taste, soluble in 54 of water and in 0.6 of alcohol at 59° F., very soluble in boiling water and in boiling alcohol. Dose, gr. j–xx.

Quininæ Hydrochloras, *Quinine Hydrochlorate,* $C_{20}H_{24}N_2O_2HCl + 2H_2O$,—white needles in tufts, of very bitter taste, soluble in 34 of water and 3 of alcohol at 59° F., in 1 of boiling water or alcohol. Is used hypodermically. Dose, gr. j–xx. An excellent salt which should be more generally used; 5 to 10 gr. doses are antipyretic.

Quininæ Valerianas, *Quinine Valerianate,* $C_{20}H_{24}N_2O_2C_5H_{10}O_2 + H_2O$,—white, pearly crystals, of valerianic odor and bitter taste, soluble in 100 of water and in 5 of alcohol at 59° F. Dose, gr. j–iij. It is the only salt of Quinine supposed to be affected by the constituent acid.

Quininæ Hydrochloras Carbamidata, *Quinine Carbamide Hydrochlorate* (Unofficial),—is a new compound salt of Quinine and Urea, soluble in equal parts of water and therefore admirably adapted for hypodermic administration in a 50 per cent. solution. It is almost unirritating to the tissues, and is given subcutaneously in doses of gr. j–iij.

Chininum Amorphum Boricum, *Amorphous Quinine Borate* (Unofficial),—is a new preparation, soluble in an equal quantity of water, and claimed by its introducers to be equally as satisfactory as any other Quinine salt, and much better borne by the stomach than any other one. It is also said to cause little or no congestion of the membrana tympani.

Tinctura Pyrexialis, *Warburg's Tincture* (Unofficial),—is a celebrated preparation, formerly secret, but published in 1875 by the originator, whose formula is as follows:—℞. Aloes soc. ℔ j; Rad. rhei (chinens), Sem. angelicæ, Confec. Damocratis,* āā ℥ iv; Rad. helenii (s. enulæ), Croci sativi, Sem. fœniculi, Cretæ prep., āā ℥ ij; Rad. gentianæ, Rad. zedoariæ, Pip. cubebæ, Myrrhæ elect., Camphoræ, Bolet. laricis, āā ℥ j. Digest the whole with 500 oz. of proof spirit in a water-bath for 12 hours, express, add ℥ x Bisulphate of Quinine, dissolve by aid of a water-bath, cool, and filter. Dose, ℥ j, in two doses 3 hours apart. Hager's modification of the original formula is—℞. Quininæ sulph. part. j, Spt. camphoræ, part. ij, Elix. proprietatis (Tinct. aloes et myrrhæ) part. xxij, Alcoholis part. xvj. The evidence published in favor of this preparation goes to show that its power does not wholly lie in the quinine, camphor, aloes or rhubarb, but in some of the aromatic plants contained in it.

Other Official Alkaloids and their Preparations.

Cinchonina, *Cinchonine,* $C_{19}H_{22}N_2O$,—white, lustrous prisms or needles, of bitter after-taste, almost insoluble in water, readily so in dilute acids and 116 of alcohol at 59° F. Dose, gr. j–xxx or more.

Cinchoninæ Sulphas, *Cinchonine Sulphate* $(C_{19}H_{22}N_2O)_2H_2SO_4 + 2H_2O$,—white, shining prisms, of very bitter taste, soluble in 66 of water and in 10 of alcohol at 59° F., and readily soluble in dilute acids. Dose, gr. v–xxx or more.

Cinchonidinæ Sulphas, *Cinchonidine Sulphate* $(C_{19}H_{22}N_2O)_2H_2SO_4 + 3H_2O$,—white, silky crystals, of bitter taste, soluble in 70 of water and in 66 of alcohol at 59° F., freely soluble in acidulated water. Dose, gr. j–xx or more.

Quinidinæ Sulphas, *Quinidine Sulphate* $(C_{20}H_{24}N_2O_2)_2H_2SO_4 + 2H_2O$,—white, silky needles, of bitter taste, soluble in 100 of water and in 8 of alcohol, readily in acidulated water, at 59° F. Dose, gr. j–xx or more. It is not so bitter as Quinine, is less expensive, and is a valuable antipyretic and antiperiodic.

Non-Official Preparations.

Chinoidinum, *Chinoidin, Quinoidin,*—a mixture of alkaloids, mostly amorphous, obtained as a by-product in the manufacture of the crystallizable alkaloids from Cinchona.

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* For the formula for this ingredient see the article on *Confections* in the section on Extemporaneous Pharmacy, Part II.

A black solid when cold, plastic when warmed, of bitter taste, almost insoluble in water, freely soluble in alcohol and in dilute acids. It contains the 4 alkaloids in amorphous condition, and has about ½ the therapeutic power of Quinine. Dose, gr. v–xxx or more.

Quinquinina, *Quinetum*,—is an Indian preparation containing the total alkaloids extracted from bark by acidulated water, then precipitated by soda and dried. In India it is called "febrifuge."

Cinchonidinæ Salicylas, *Cinchonidine Salicylate*,—has anti-malarial power only inferior to the salts of Quinine.

SUBSTITUTES FOR QUININE.

The synthetical production of Quinine has been the "philosopher's stone" of the modern chemists, who have prosecuted with untiring energy the search for an artificial product possessing all its properties. Though in this they have as yet been unsuccessful, they have discovered several organic bodies, which closely resemble each other and also quinine, both in chemical constitution and physiological action. These substances belong to the aromatic series of carbon compounds, all of which are derivatives of *Benzene* or *Benzol*, C_6H_6, the Hydride of the organic radical *Phenyl*, C_6H_5. The distinctive action of the lower members of this series is their *antiseptic* and *antipyretic* powers,—as that of the fatty series of carbon compounds is *stimulant* and *anæsthetic* (Brunton). Many of these agents are obtained from coal-tar oil (petroleum) by fractional distillation, etc.,—and they are all derivatives of Benzene (Benzol), either directly or from some of the products formed therefrom, by substitution; various radicals replacing the different constituent atoms of H and C.

Thus by the ring-arrangement of atoms peculiar to this series, there are formed from Benzene (C_6H_6), the following substances, viz.—

Phenol, or *Carbolic Acid*, C_6H_5OH—by replacing H by OH, (hydroxyl).
Pyrocatechin, or *Ortho-* $C_6H_4(OH)_2$.
Resorcin, or *Meta-* *dioxybenzol*,—by replacing 2H by 2OH.
Hydroquinone, or *Para-* $C_6H_4(OH)_2$.
Pyrogallol, *Pyrogallic Acid*, *Tri-hydroxybenzene* $C_6H_3(OH)_3$,—3H by 3OH.
Amido-benzene, or *Anilin*, $C_6H_5.NH_2$—by replacing H by NH_2 (amidogen).
Nitro-benzene, $C_6H_5.NO_2$—by replacing H by NO_2 (nitroxyl).
Benzoic Acid, $C_6H_5CO.OH$—by replacing H by CO.OH (carboxyl).
Salicylic Acid, $HC_7H_5O_3$—by replacing 2H by OH and CO.OH.
Naphthalin, $C_{10}H_8$—by uniting two Benzenes in an over-lapping ring.
Pyridin, C_5H_5N—by replacing tetrad C by triad N.
Chinolin, C_9H_7N—uniting Benzene (C_6H_6) and Pyridine (C_5H_5N).

Derived from Chinolin is the hypothetical base—
Chinicin, or *Quinicin*, $C_9H_9N_2$,—represented in Antipyrin.
Also *Kairin*, *Thallin*, and other compounds.

The most important of these are Antipyrin, Acetanilid, Resorcin, Chinolin and Naphthalin, which are respectively described in separate articles. Others of the same class are the following, viz.—

Some Unofficial Antipyretics.

Kairinum, *Kairin* (*Hydrochlorate of Oxy-ethyl chinolin-hydride*), $C_{10}H_{13}NO.HCl.H_2O$,—is an artificial alkaloid prepared from Chinolin, belonging to the phenol group of carbon compounds, and a powerful antipyretic in 8-grain doses hourly. It stains the urine a deep green, and has not proven fatal though 220 doses have been administered in one case. In some cases of typhus it has caused cyanosis and collapse. It produces profuse sweating and vomiting, and the subsequent rise of temperature after its antipyretic influence has worn off is generally ushered in by a severe rigor. It is by many authorities considered to be the most certain, most powerful and most rapid antipyretic drug we possess, though this claim is now disputed by the advocates of Antipyrin. It occurs in white crystals, which are freely soluble in water, but is best given in wafer, paper or capsules. Dose, gr. iij–xxx.

Kairolinum, *Kairolin* (*Sulphate of Tetra-hydromethyl-chinolin*),—is antipyretic, but much less efficient than Kairin.

Thallin (*Parachinanisols*),—is a synthetically prepared alkaloid, having the chemical name *Tetra-hydro-paramethyl-oxy-chinolin*. It occurs as a colorless powder which is soluble in water, and enters into combination with acids, forming salts, of which the tartrate and sulphate are the most eligible, especially the latter. The dose of Thallin or its Sulphate ranges from gr. ij to gr. xv, a mean average dose being about 5 grains, given in the form of compressed tablets. Thallin is an antipyretic of very great power, doses of 5 to 12 grains lowering the temperature in typhoid fever 4° to 5° in 2 hours' time, the effect lasting nearly 3 hours. In tuberculosis similar results were obtained. Large doses, however, produce very profuse sweating and a dangerous degree of depression; so that this agent is not a favorite remedy for hyperpyrexia.

Hydroquinone (*Para-di-hydroxy-benzene*) $C_6H_4(OH)_2$,—is isomeric with Resorcin (see *ante*, page 195). It crystallizes in rhombic, colorless prisms which are slightly soluble in water, readily so in alcohol and in ether, and is obtained from *Arbutin*, a glucoside constituent of Uva Ursi and other Ericaceæ. It is an efficient antipyretic, without injurious effects so far as observed, but its influence is only temporary. The action of this drug on animals is summarized in the *N. Y. Medical Record* for August 15th, 1885, and its influence on pyrexia elucidated in the same journal for May 30th, 1885. Dose, as an antipyretic, gr. xv–xx, best given in alcohol. Gr. xl have been given without disagreeable effects.

Pyrocatechin, *Catechol* (*Ortho-di-hydroxy-benzene*), $C_6H_4(OH)_2$,—is also isomeric with Resorcin, and is one of the acid constituents of coal tar, also obtained from wood-tar and from kinic acid. It is a good antipyretic, but much inferior to Quinine or Resorcin.

Phenacetin (*Acetphenetidin*),—a white and glossy, crystalline powder, in chemical constituent analogous to Acetanilid. It is tasteless, and but slightly soluble in water, more so in glycerin, and still more so in alcohol and in lactic acid. It is a very efficient antipyretic and antineuralgic, with no disagreeable after effects. The dose is about one-half that of Antipyrin or gr. x–xx. See under PHENACETINUM.

Pheno-resorcin,—is a mixture of Carbolic Acid 67 with Resorcin 33 and Water 10, forming a liquid which mixes readily with water. It is supposed to combine the virtues of both its ingredients.

Physiological Action.

The action of Cinchona in sufficient dose is generally that of its alkaloid Quinine, except that bark is decidedly astringent, more of a gastric irritant, and by reason of its bulk its active principles are more slowly absorbed. In large doses (ʒij) the powdered bark has produced flatulence and eructation, and in many well-authenticated instances has apparently produced a well-marked febrile paroxysm, beginning with chill, then fever and headache, which gradually subsided in slight perspiration. So also, Quinine, while incapable of producing intermittent fever in a healthy person, may, if taken in large doses unnecessarily, throw the nervous system into high commotion, and if untimely used by a malarial subject may reproduce the paroxysm with greater or less severity.

CINCHONA is an astringent bitter and a stomachic tonic. At first it promotes appetite, digestion, the flow of saliva and of gastric juice; long-continued it sets up a gastric catarrh, impeding digestion and causing constipation.

Quinine is a bitter tonic, antiseptic, antiperiodic, antimiasmatic and antipyretic, a diminisher of reflex action, a protoplasmic poison, a cardiac depressant and perhaps an oxytocic. It is rapidly diffused and slowly excreted, being found in the urine in 15 minutes after its administration and for two or three days afterwards. Its action on the stomach is similar to that of cinchona. It arrests the movements of the white blood-corpuscles though increasing their number, and prevents acetification and decay of the blood. It is actively destructive of lowly organized life, a solution of 1 to 500 being fatal to infusoria and fungi, while one of double this strength prevents alcoholic fermentation and checks putrefactive decomposition. The heart and arterial tension are somewhat stimulated by small doses, but depressed by large ones (gr. xl–lxxx), which slow and enfeeble the pulse by direct action on the cardiac ganglia. The brain is rendered hyperæmic and exhilarated by small or moderate doses, but large ones produce a sense of fulness and constriction in the head, cerebral anæmia, pallor, tinnitus aurium, vertigo, staggering gait, amaurosis, and deafness, great headache, dilated pupils, delirium, coma, and in animals convulsions. The eyes and ears are very rarely injured permanently. These symptoms collectively are termed *Cinchonism*. It reduces the size of the spleen when enlarged, and lowers the temperature of pyrexia, though it does not depress the body temperature in health. Large doses lower the reflex function of the spinal cord. In some subjects it produces sexual excitement, in others cutaneous eruptions sometimes followed by desquamation. It lessens the excretion of uric acid, but not that of urea, and is a uterine stimulant in labor, but its power to initiate uterine contractions is a much debated question.

Quinidine and Cinchonidine correspond in action with Quinine both qualitatively and quantitatively, the latter however producing less severe head symptoms.

Cinchonine also corresponds in effect, but is much the least active of the four alkaloids. It is said to produce greater headache, and much precordial pain and muscular weakness, but to have little effect on sight or hearing.

Antagonists and Incompatibles.

Morphine antagonizes its cerebral action. *Atropine* its nervous, cardiac and antipyretic powers. Free Tannic Acid is incompatible with the Infusion of Cinchona. Iodine preparations, Alkalies, Alkaline Carbonates and Earths, are incompatible with solutions of the alkaloids, the first-named forming insoluble compounds, the latter precipitating them.

Therapeutics.

Cinchona is used as a tonic, and has many applications. The Infusion or Compound Tincture with a mineral acid is extremely serviceable in atonic dyspepsia, gastric catarrh of alcoholics, adynamia, convalescence, asthma, chronic bronchitis, and generally in weak subjects of flabby flesh and perspiring skin.

QUININE finds its principal field of action in the malarial diseases, over which its power is that of a specific. In intermittents, a ten-grain dose of the sulphate should be given in the sweating stage and again 5 hours before the expected time of the next paroxysm. In the intervals Arsenic is better used, as Quinine may cause a daily exacerbation of temperature if long continued. In remittents 20- to 30-grain doses should be administered once or twice a day until the temperature is reduced to the normal point. In pernicious remittents large doses (gr. xxx to lx) are necessary to the safety of the patient. In chronic malarial poisoning Quinine has considerable power, but Chinoidin is more effective. Small doses of Quinine (gr. ij–iij per diem) are efficient as a prophylactic against malaria.

As an antipyretic Quinine is used with the best results, especially in typhus, typhoid, variola, pneumonia and acute rheumatism. Inflammations may, at their inception, be aborted by 15- or 20-grain doses, combined with Morphine, which in this respect is synergistic to Quinine. Acute tonsillitis and acute catarrh may sometimes be aborted by a full dose. In surgical fevers, pyæmia and exhausting suppurative conditions, also in septicæmia, hectic fever, and before surgical operations, Quinine is much employed. Neuralgias of malarial origin are amenable to it, as also neuralgia of the ophthalmic division of the fifth nerve. In eruptive fevers, especially scarlet fever, erysipelas and measles, it is advantageously administered throughout their course. In some skin diseases particularly erythema nodosum, it is quite efficient, also in whooping-cough and hay-fever. In the latter affection a solution of gr. vj to the ℥ of the neutral hydrochlorate is a very useful local application.

ANTIPYRESIS has of late received considerable attention, particularly in the German hospitals. The most certain and safe of all antipyretics is undoubtedly the cold bath, but it is not always the most practicable, especially in private practice. Internal antipyretics are therefore of great value, and of these the safest and best is Quinine, next in order being Phenacetin.

WARBURG'S TINCTURE has obtained a very high reputation in the hands of Indian army-surgeons in the treatment of remittent and other malarial fevers of the most malignant types, in malarial neuralgiæ, acute nervous exhaustion and sudden collapse without organic disease. The most pronounced testimony to its value is that of Dr. Maclean (*Med. Times and Gazette*, Nov., 1875), whose authority will not be questioned by the most captious. He affirms that the influence of this combination to arrest an exacerbation of remittent fever is far more powerful than that of Quinine alone. The remedy has become much less of a favorite since its originator was induced to make public the secret of its composition.

Administration.

The persistently bitter taste of Quinine and its salts is best obviated by administering them in pill form, made with glycerin as an excipient, or by using Liquorice, Eriodyction or Chocolate to cover the taste if given in solution or powder. The taste is extremely well covered by using as a vehicle a combination of Glycyrrhizin and Fluid Extract of Eriodyction, named "*Velatine*," but the Quinine must be suspended therein by the aid of mucilage, for when an acid is used to dissolve it the bitter taste cannot be disguised.

For hypodermic use the best salt is the Carbamide Hydrochlorate, by reason of its ready solubility and freedom from irritant quality.

CINNAMOMUM, Cinnamon,—is official under the three following titles, viz.—

Cinnamomum Cassia, *Cassia Cinnamon,*—is the bark of the shoots of one or more undetermined species of *Cinnamomum*, (nat. ord. Laurineæ), grown in China. Is a constituent of the compound tinctures of Cardamon, Catechu and Lavender.

Cinnamomum Saigonicum, *Saigon Cinnamon,*—the bark of an undetermined species of *Cinnamomum*.

Cinnamomum Zeylanicum, *Ceylon Cinnamon,*—the inner bark of the shoots o *Cinnamomum Zeylanicum*.

The latter occurs in light, yellowish-brown quills, consisting of several pieces rolled together, each very thin, while the Chinese variety comes in single quills of irregular form and rougher texture. The taste is warm and aromatic, and the odor very fragrant. The active principle is a *Volatile Oil*, and they also contain a resin, and tannic and cinnamic acids. Dose, gr. x–xx.

Preparations.

Oleum Cinnamomi, *Oil of Cinnamon, Oil of Cassia,*—a volatile oil distilled from Cassia Cinnamon. A yellowish-colored liquid, of sp. gr. 1.055 to 1.065; soluble in an equal part of alcohol or of glacial acetic acid. Becomes darker and thicker by age and exposure to air. Dose, gtt. j–v.

Aqua Cinnamomi, *Cinnamon Water,*—has of the Oil 2, triturated with Precipitated Calcium Phosphate 4, and Distilled Water to 1000. Dose, indefinite.

Spiritus Cinnamomi, *Spirit of Cinnamon,*—has 10 per cent. of the oil in Alcohol to 100. Dose, ♏v–xxx.

Tinctura Cinnamomi, *Tincture of Cinnamon,*—has of Ceylon Cinnamon 10, Glycerin 5, Alcohol and Water to 100. Dose, ʒss–ij.

Pulvis Aromaticus, *Aromatic Powder,*—has of Ceylon Cinnamon 35, Ginger 35, Cardamom 15, Nutmeg 15, triturated together to a fine powder. Dose, gr. x–xxx.

Extractum Aromaticum Fluidum, *Aromatic Fluid Extract,*—has of Aromatic Powder 100 per cent. in Alcohol. Dose, ♏x–xxx.

Cinnamon is an agreeable carminative, somewhat astringent and stimulant, also highly aromatic and antiseptic. The oil is not astringent but is a pleasant stimulant to the nervous and vascular systems, and is by some believed to exercise a specific action on the uterus, particularly as a hemostatic.

The various preparations are in general use as flavoring excipients, and the Aqua is a pleasant vehicle for extemporaneous prescriptions. The Bark and its preparations are used to check diarrhœa in combination with opium, chalk, or some vegetable infusion. The Oil is a good stimulant in flatulence, paralysis of the tongue, cramp of the stomach, enteralgia, etc., and is sometimes used to check nausea and vomiting. Cinnamon was formerly used with success in uterine hemorrhage, generally in combination with sulphuric acid, which of itself is an efficient uterine hemostatic. It has lately been employed in France as an internal germicide, with great satisfaction; and has given particularly good results in the treatment of typhoid fever, against the supposed bacillus of which disease it is believed, by its advocates, to have specific and destructive powers.

COCA, Coca, *Cuca,*—the leaves of *Erythroxylon Coca*, a small shrub of the nat. ord. Lineæ, indigenous to the mountains of Peru and Bolivia, and extensively cultivated in those and other S. American states. It has numerous purplish-brown branches; small, yellowish, 5-petalous flowers, and a scarlet-red, oblong fruit, containing a single seed. The leaf resembles a large tea-leaf, being 2 to 3 inches long, oval-shaped, obtuse at the apex, reticulate on both sides, with a prominent midrib, on either side of which is seen a curved line on the leaf from base to apex; odor tea-like, taste slightly bitter and aromatic. It contains a crystalline alkaloid *Cocaine*, $C_{17}H_{21}NO_4$, which when heated with HCl is split up into Benzoic Acid, Methylic Alcohol and another alkaloid *Ecgonine*. Other constituents are a volatile, liquid alkaloid of herring-brine odor, alkaline reaction and burning taste, named *Hygrine*, an aromatic Oil, and Coca-tannic Acid. Coca should not be confounded with Cocoa, the seed of the chocolate-tree, *Theobroma Cacao*. Dose of the leaves, ʒj–iv.

Preparations.

Extractum Cocæ Fluidum, *Fluid Extract of Coca*,—Dose, ʒ ss–ij. Leaves of good quality are often so difficult to be obtained that Dr. Squibb, the well-known pharmaceutist has more than once omitted the fluid extract from his trade list, with the explanation that "it is impossible to get Coca of proper quality for medical use."

Cocaina, *Cocaine*, $C_{17}H_{21}NO_4$ (Unofficial),—crystalline, colorless and of bitter taste, very soluble in ether, almost insoluble in water or alcohol, and of decided basic properties, combining with acids to form salts. It exists in the leaves in very small quantity, viz.—from 0.02 to 0.04 per cent. Dose, gr. ⅛–j.

Cocainæ Hydrochloras, *Cocaine Hydrochlorate*, $C_{17}H_{21}NO_4HCl$,—also called Cocaine Muriate, but is more properly Cocaine Chloride,—occurs in colorless, transparent crystals, odorless, of saline, slightly bitter taste, producing on the tongue a tingling sensation followed by numbness. Soluble in 0.48 of water, and in 3½ of alcohol. Is used in aqueous solutions of 2 to 10 or more per cent. hypodermically or locally to mucous surfaces as a local anæsthetic. Dose, internally, gr. ⅛–j; by hypodermic injection, gr. ⅛–½.

Cocainæ Oleas, *Oleate of Cocaine* (Unofficial),—a 10 per cent. solution of the alkaloid in Oleic Acid, for external use.

Wines, Lozenges, Elixirs, Glyceroles, Pastes, etc., of Coca are being manufactured and marketed in great variety. The Citrate and Salicylate of Cocaine are recent products of the laboratory and may be obtained in the shops.

PHYSIOLOGICAL ACTION.

COCA is an aromatic bitter tonic, a diuretic and a cerebral and nervous stimulant, though locally used one of the most efficient nerve sedatives. Small doses improve digestion, stimulate respiration, increase the heart's action after a brief depression, raise the arterial tension, and increase the excitability of the sensory nerves. It stimulates the brain by increasing its blood-supply, producing wakefulness, a sense of well-being, and a marked diminution of the senses of fatigue, hunger and thirst. Under its daily use a considerable amount of labor and want of sleep can be borne without suffering. Though diuretic, it lessens the quantity of urea eliminated by checking the processes of waste. Large doses produce impaired coördination, hallucinations and delirium.

COCAINE acts upon the lower animals similarly to Caffeine. It tetanizes frogs, and in large doses paralyzes their sensory nerves and the posterior columns of the spinal cord. It kills rabbits and dogs by paralysis of the respiratory centre. In proper doses it raises arterial tension by stimulating the vaso-motor centres and the cardiac motor system.

On man, in small doses Cocaine is a cerebral, cardiac, respiratory and nervous stimulant, and a diuretic. It improves digestion, stimulates respiration, increases the heart's action, raises the arterial tension, and exalts the irritability of the sensory nerves. It stimulates the brain by increasing its blood-supply, producing wakefulness and marked diminution of the senses of fatigue and hunger. Though decidedly diuretic, it lessens the quantity of urea, by checking the processes of waste, thus acting as an indirect nutrient, and enabling the body to maintain its energy on a lessened supply of food. It increases the cutaneous circulation, flushing the surface, exciting perspiration, and a sense of heat, and does actually raise the body-temperature. It dilates the pupil, both when locally applied and when taken systematically,—and stimulates intestinal peristalsis as well as the evacuation of the bladder in a few minutes after its ingestion.

An overdose produces symptoms of cardiac and respiratory embarrassment in a very short time. The pulse, at first quick and forcible, becomes small, rapid and intermitting;—the heart apparently standing still in systole once in every 10 or 12 beats. Respiration is slow and shallow, and a sense of "tightness" about the chest is very marked;—the skin grows cold and clammy, and the subject is seized with a sense of impending dissolution. Death occurs in animals by paralysis of respiration,—but in man a tetanoid spasm of the cardiac muscle seems to occur, which is equally dangerous to life. Other symptoms are impairment of coördination, hallucinations and delirium. Lethal doses paralyze the intracardiac motor ganglia, the posterior columns of the cord, the sensory nerves, and the respiratory centre.

Nearly three years ago, Satterwhite, as a result of the study of one hundred cases of poisoning by this alkaloid, called attention to the dangers attending the use of even very small doses, and at about the same time another author, after summarizing the records of fifty cases, made a similar announcement. A case is reported by Broughton in which unconsciousness, an irregular, slow respiration, and a slow pulse, followed the application of three minims of a twenty per cent. solution within the cavity of a tooth. Whistler, after the application of a four per cent. solution to the nasal cavity, noted vertigo and threatening syncope. In a case of glossitis, Ricket states, that the patient became moribund after the use of a similar solution. Myrtyle dropped three minims of a three per cent. solution in each eye, which immediately caused a sense of numbness in the back of the tongue and throat, palpitation, threatened syncope and nausea. Bettleheim records that in one case the hypodermatic injection of one-sixth of a grain induced alarming symptoms; and in another, one-eighth of a grain similarly injected caused unconsciousness, congestion of the face, irregular breathing and trismus.

As a *Local Anæsthetic* the power of Cocaine is very great over a limited area. Applied to such structures as the Schneiderian membrane, and the mucous covering of the glans penis; or injected hypodermically in other locations, it blanches the structures and causes a profound but temporary anæsthesia throughout a small space. Applied to the tongue it temporarily destroys both taste and tactile sensibility;—to the ocular conjunctiva, it produces profound anæsthesia of that membrane, together with dilatation of the pupil, partial paralysis of accommodation, enlargement of the palpebral fissure, slight lachrymation, and sometimes temporary ptosis. This profound degree of anæsthesia is thought by some to be caused by its paralyzing the terminal twigs of the sensory nerves,—by others to be due to vaso-motor stimulation rendering the nerves bloodless and therefore unable to transmit sensory impressions. It produces mydriasis by stimulation of the ends of the sympathetic in the iris, and does not affect the third nerve or the sympathetic centre.

In general action, Cocaine resembles Atropine very closely, especially in its influence upon the pulse and blood-pressure, the respiration, pupils, salivary- and sweat-glands and intestinal peristalsis. In its symptoms, both from large and small doses, it exactly parallels Sparteine, another cardio-inhibitory depressant.

Antagonists.

Amyl Nitrite combats the earliest symptoms of cardiac depression,—then *Alcohol* and *Opium* as stimulants to the heart, also *Artificial Respiration.*. The most direct antagonist is *Chloral*, so also are Chloroform and Ether. *Morphine* is also directly antagonistic at almost all points.

The Cocaine-Habit.

COCAINISM, the Cocaine-habit, is now presenting itself to observation, numerous instances of persons addicted to its excessive use being met with. Loss of digestive power, absolute insomnia, enfeeblement of the intellect, great emaciation, ascites, general marasmus, nausea, decay of the teeth, an excessively fetid breath, amblyopia, visual hallucinations and complete anorexia, form a consensus of symptoms which rival the worst effects of the opium habit. Some observers report the most extraordinary mental changes resulting from Cocainism, and exceeding those produced by any other drug. The most intense selfishness, utter disregard of all social and domestic duties, the most debasing habits, complete destruction of all noble qualities, and a general condition of depravity, are some of the results which are charged to this drug. The author's experience of a large number of such cases convinces him that a cocaine habituè who has used the drug daily for three months is practically an insane individual while under the influence of the drug; but that the mind soon resumes its normal condition after withdrawal thereof, which can be done, in nearly all cases, at once, without involving any serious suffering.

The Cocaine-habit is acquired, in most of the cases, by persons previously addicted to the use of Morphine, who go to Cocaine in the hope of finding help in their struggle against the tyranny of the former drug. In this hope, however, they are always disappointed when the drugs are in their own hands. The victim soon finds that one of these agents antagonizes the other to a great extent, while, at the same time, it sets up peculiar troubles of its own: and that there is a constant need of more Morphine to counteract the Cocaine-symptoms, and of more Cocaine to antagonize the symptoms due to the increased amount of Morphine. The result of any such attempt will be that one who is only using a moderate daily amount of Morphine, will, if Cocaine be added, soon be using a very great amount of Morphine, as well as of Cocaine, and "the last state of that man is worse than the first."

As the stimulant effect of a single hypodermic injection passes off very quickly, within about 15 or 20 minutes, the cocaine habituè is under the necessity of constantly injecting the drug, so that, as one such expressed it, "I had no time to go home,—no time to do anything except to prepare and take one 'shot' after another." The effect of such repeated puncturing of the skin is very disastrous to that tissue, causing great induration, and numerous sloughing sores.

THERAPEUTICS.

COCA-LEAVES are chewed by the Peruvians for the purpose of sustaining them during arduous labors and long journeys, and were so highly esteemed as to have been represented on the coat-of-arms of that nation, by whom they are used much as we do tea, coffee or tobacco. This example was imitated by Weston the pedestrian, who is said to have been detected chewing the coca-leaf during one of his protracted walks. COCAINE is a useful stimulant to the brain and the nervous system in many morbid conditions, particularly cerebral and spinal anæmia, neurasthenia, melancholia, hysterical and hypochondriacal insanity, and in protracted mental depression with suicidal tendency. It may be employed with benefit in wasting diseases to retard waste and to stimulate digestion, in convalescence from fevers and other acute maladies, and in migraine and neuralgia due to depression of the nervous system. It is very beneficial in some cases of the vomiting of pregnancy, in stomatitis and gastralgia, and in functional impotence due to general atony of the system.

A wine of the leaves is thought by singers and speakers to relieve hoarseness, to tense the vocal cords and improve the timbre of the voice. Coca-leaves may be smoked in cigars or cigarettes to obtain the exhilarating effects of the drug, and for the relief of asthma, hay-fever and many irritable throat affections. The Oleate of Cocaine is an efficient palliative application to painful hemorrhoids, fissures of the anus, burns, boils, and irritable ulcers; also in pruritus pudendi et ani and skin diseases attended with intolerable itching.

COCAINE HYDROCHLORATE has achieved notoriety as a local anæsthetic, and promises to be of the greatest value in many operations on the eye and ear, nasal passages, uterus and urethra. A 2 to 4 per cent. solution is brushed lightly over the mucous surface or injected into the urethral canal, the application being repeated within 5 or 10 minutes if profound local anæsthesia is required. After about fifteen minutes any superficial operation may be performed without giving the slightest pain. Its anæsthetic action is so entirely local and generally free from unpleasant after-effects that it is considered the most efficient and desirable agent of the kind which is known. It has been used in the same manner with decided benefit in congestion of the nasal passages from acute catarrh and hay-fever; and has been applied to the cervix uteri to relieve the first pains of labor, to the ear for tinnitus aurium, and by inhalation to strengthen the vocal cords, relieve hoarseness and cough, and to improve the quality of the voice. It is injected hypodermically around the prepuce to prevent pain during circumcision, into the vicinity of the supra-orbital and infra-orbital foramina to cut short neuralgia of those nerves, and into hemorrhoids previous to their ligation. It may be injected into the bladder before lithotrity, into the urethra before the passage of sounds or catheters or to relieve chordee, and it is an excellent application to the gums of teething infants. To be efficient it must reach the terminal filaments of the sensory nerves in sufficient concentration. Rhus poisoning, by either the oak or ivy, is promptly controlled by the application of a 5 per cent. solution or oleate, freely over the affected surface. It gives instant relief from the burning and itching, and speedily reduces the dermatitis.

The rapid accumulation of cases in which alarming symptoms followed the local application of small quantities of cocaine, together with the fact that these untoward effects are due to individual idiosyncrasy and do not invariably occur immediately, is a positive warning to the profession that this powerful substance should not be used in any case for the first time without proper antidotes directly at hand and the patient being kept under surveillance for at least a half hour. There seems to be no doubt that cocaine is absorbed with extraordinary rapidity and that the stronger the solution which is locally applied, the greater the danger of toxic symptoms, but whether the latter are to be attributed merely to the larger dose or to some obscure action, is not apparent. Falk has found that the rapidity of absorption varies in the different tissues—absorption taking place most rapidly through the conjunctiva, then in the following order: nose, larynx, mouth, and ear. It is generally conceded that a 5 per cent. solution is sufficiently strong for most purposes, besides being free from many of the dangers attending the use of stronger ones.

As a Mydriatic for ophthalmological use, Cocaine has peculiar qualities which make it the most serviceable of the class. The dilatation produced by it is great, is quickly attained, lasts only 12 to 20 hours, is promptly overcome by the application of Eserine, and is not accompanied by much photophobia. The latter is due to the fact that the cocainized pupil is not rigidly dilated (as with Atropine), but reacts to light. The accommodation, moreover, is greatly reduced, but not entirely paralyzed, and is quickly regained.

As an Antagonist Cocaine is of especial value in narcotic poisoning by Chloral or Opiates, where depression of the cardiac and respiratory centres exists. It is also indicated in chronic depressant poisoning from the Bromides, and in spinal paralyses. In these cases it has all the advantages of Strychnine without its poisonous character. It has no value in the proper treatment of Morphinism except to antagonize certain heart symptoms, for which purpose it should be administered only by the physician in charge of the case; but never as a regular remedy, at regular intervals of time, even by him.

COCCUS, Cochineal,—is the dried female of *Coccus cacti*, an insect of the order Hemiptera, which feeds on the cactus plants of Mexico and Central America. Occurs in ovate, plano-convex form, of a purple-gray or purple-black color, yielding when crushed a dark-red powder, which contains *Carminic Acid*, or *Carmine*, the red coloring-matter, which is soluble in water and alcohol, but not in oils. Cochineal is an ingredient of Tinctura Cardamomi Composita, and is used in pharmacy solely as a coloring material.

The only therapeutic use of Cochineal is in whooping-cough and neuralgia, in which affections it is supposed to have considerable influence, especially in the former. Its dose to an infant is about gr. ⅓ thrice daily.

COLCHICUM, Meadow Saffron,—is the corm and seed of the *Colchicum autumnale*, a European plant of the nat. ord. Liliaceæ. It contains an intensely bitter, poisonous alkaloid, *Colchicine*, $C_{17}H_{19}NO_5$, which by the action of acetic and mineral acids is converted into *Colchiceine* and a resin,—also tannic and gallic acids, resin, starch, sugar, etc. It is official in two forms, namely—

Colchici Radix, *Colchicum Root,*—the corm, about 1 inch long, white internally, grooved on one side, inodorous, taste sweetish, bitter and acrid. Is less active than the seed. Dose, gr. ij–viij. Contains of Colchicine, 0.45 per 1000.

Colchici Semen, *Colchicum Seed,*—about $\frac{1}{12}$ inch thick, sub-globular, resembling black mustard seed but larger, very hard and tough, inodorous, of bitter and acrid taste. Dose, gr. j–v. Contains of Colchicine, 3.35 per 1000.

Preparations.

Extractum Colchici Radicis, *Extract of Colchicum Root,*—made with Acetic Acid 35 parts to 100 of the root, and sufficient water. Dose, gr. ½–ij.

Extractum Colchici Radicis Fluidum, *Fluid Extract of Colchicum Root.*—Dose, ♏ ij–x.

Extractum Colchici Seminis Fluidum, *Fluid Extract of Colchicum Seed.*—Dose, ♏ j–v.

Vinum Colchici Radicis, *Wine of Colchicum Root,*—strength 40 per cent. Dose, ♏ v–xv.

Vinum Colchici Seminis, *Wine of Colchicum Seed,*—strength 15 per cent. Dose, ♏ x–xxx.

Tinctura Colchici Seminis, *Tincture of Colchicum Seed,*—from the seed, strength 15 per cent. Dose, ♏ x–xxx.

Colchicina, *Colchicine*, $C_{17}H_{19}NO_5$ (Unofficial), a white or yellowish, amorphous powder, of saffron-like odor and bitter taste, soluble in water and in alcohol. Dose, gr. $\frac{1}{120}$–$\frac{1}{60}$. Is suitable for hypodermic injection.

Laborde and Houdé condemn all preparations made with acetic acid, also those made from the tubers and all wines. The best preparation is Colchicine, in granules or in a wine; or a strong tincture made from fresh seed with the shell on, the latter containing a very volatile but active oil. Of this seed ℥j to ½ pint of highest proof alcohol, standing for 2 weeks. Of this ʒv to water q. s. ad O½, of which the dose is ℥ss every 4 hours night and day, avoiding acids, until nausea, vomiting and purging set in.

PHYSIOLOGICAL ACTION.

Colchicum is emetic, diuretic and diaphoretic, a drastic purgative, a gastro-intestinal irritant and a cardiac depressant. In small doses it increases secretion, especially the urine and the sweat. In full doses its action is emeto-cathartic, producing profuse watery discharges, great nausea and extreme muscular feebleness. In large doses it is a powerful irritant of the gastro-intestinal tract, causing severe griping, choleraic discharges, lowered arterial tension and depression of the heart by reflex action over the distribution of the pneumogastric,—then great prostration, convulsions and collapse, death occurring from exhaustion, with consciousness preserved until carbonic acid narcosis sets in. On the excretion of uric acid and urea its influence is very much disputed, but it probably increases the flow of bile, and certainly unloads the portal circulation.

Antagonistics and Incompatibles.

Tannic Acid to retard absorption. Emetics and cathartics, also warm demulcent drinks freely. *Morphine* hypodermically to antagonize the cardiac depression, also Alcohol.

THERAPEUTICS.

Colchicum is a specific palliative in gout of acute form, in which it should be given with an alkali, and kept short of emeto-catharsis. It does not prevent relapses, and its power in this disorder is weakened by repetition. In ascites from obstructive disease of the liver it is most effective, given in full doses to establish a profuse drain, with opium to sustain the heart. In acute cerebral congestion and in portal congestions it is well given as a drastic purgative. It is often used with marked success in acute rheumatism, but frequently fails, and in no case should it be continued long in this affection. It has been used with good results in the treatment of gonorrhœa and chordee. The alkaloid is probably the best preparation for general use, and is admittedly superior to the other preparations in acute gout.

COLOCYNTHIS, Colocynth,—is the fruit of *Citrullus Colocynthis*, deprived of its rind. The plant is a native of Spain and Asiatic Turkey and belongs to the nat. ord. Cucurbitaceæ, the fruit being of the size of a small orange, white, light, spongy, inodorous, very bitter, containing many flat, brown seeds which should be rejected before the pulp is used. Its active principle is *Colocynthin*, $C_{56}H_{84}O_{23}$, an amorphous but crystallizable bitter glucoside, readily soluble in water. It also contains *Colocynthein*, a resin, and *Colocynthitin*, which is a tasteless, crystalline powder, soluble in ether but not in water, and devoid of purgative action.

Preparations.

Extractum Colocynthidis, *Extract of Colocynth.*—Dose, gr. ½–ij.

Extractum Colocynthidis Compositum, *Compound Extract of Colocynth*,—contains of the preceding 16 parts, Aloes 50, Cardamom 6, Resin of Scammony 14, Soap 14, Alcohol 10. Dose, gr. v–xx.

Pilulæ Catharticæ Compositæ, *Compound Cathartic Pills*,—have of the preceding 8, Calomel 6, Extract of Jalap 3, Gamboge 1½, Water to make 100 pills. Dose, j–iij pills.

Pilulæ Catharticæ Vegetabiles, *Vegetable Cathartic Pills*,—have of Compound Extract of Colocynth 6, Extract of Hyoscyamus 3, Extract of Jalap 3, Extract of Leptandra 1½, Resin of Podophyllum 1½, Oil of Peppermint 0.8, Water to make 100 pills. Dose, j–iij pills.

Laville's Anti-Gout Remedy,—is a proprietary medicine prepared in France and purporting to be "a mixture of prepared Kino-colocynthine." The published formula is as follows: Active principle of Colocynth 2½, Quinine and Cinchonine 5, Spanish Wine 800, Alcohol 100, Water to 1000 parts; but there is good reason for believing that it contains *Colchicine* instead of Colocynthin.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Colocynth is classed among the tonic-astringent and resin-bearing purgatives. In moderate doses it increases peristalsis and the intestinal glandular secretions, producing bilious, watery evacuations with much colicky, griping pain. Its purgative action is specific, and may be obtained by its application to the skin over the abdomen. In large doses it is a violent irritant of the gastro-intestinal tract, and has frequently produced fatal gastro-enteritis. It is popularly supposed to be abortifacient, but this is only true of quantities sufficient to endanger life. It is an indirect diuretic.

Colocynth is too severe an agent to be administered alone for constipation, but it makes a useful factor in compound purgatives, as the compound cathartic pills. In cerebral congestion it may be used to produce rapid derivation, and in ascites to set up a profuse drain from the intestinal canal. In certain cases of chlorotic amenorrhœa it stimulates the pelvic nerves and vessels with excellent results. There seems to be abundant evidence that in very small doses (♏ $\frac{1}{20}$–$\frac{1}{16}$ of a tincture) Colocynth is an efficient remedy in colic, sciatica, ovarian and other neuralgiæ, as well as in the pain of glaucoma. These actions may be due to its two non-purgative principles, which may prove to possess powers not heretofore suspected, an example of which is seen in the recently-discovered cardiac influence of Convallaria, a drug until recently only known as a purgative and a diuretic.

CONIUM, Hemlock,—is the full-grown fruit, gathered while green, of *Conium maculatum*, the spotted hemlock (nat. ord. Umbelliferæ). It is smaller than anise-fruit, of a gray-green color, slight odor and taste, and contains 3 alkaloids, namely,—*Coniïne*, $C_8H_{15}N$, liquid and volatile, *Methyl-coniïne*, $C_8H_{14}NCH_3$, and *Conhydrine*, $C_8H_{17}NO$, solid and volatilizable;—also Coniic Acid and a volatile oil. *Paraconiïne* is an artificial substance produced by the reaction between Butyric Aldehyd and an alcoholic solution of Ammonia, and isomeric with Coniïne but not identical with it. The leaves of Conium are no longer official.

Preparations.

Extractum Conii, *Extract of Conium*,—each grain represents a grain of the crude drug. Dose, gr. ij–v–xl.

Extractum Conii Fluidum, *Fluid Extract of Conium*,—has the same strength as the extract. Dose, ♏ ij–v–xl.

Conīina, Coniïne, $C_8H_{15}N$ (Unofficial),—an oily, limpid, volatile liquid, of acrid taste, alkaline reaction, and an odor compared to that of the urine of mice. It is quickly decomposed by heat, and if exposed to the air soon becomes inert. Dose, gr. $\frac{1}{60}$–$\frac{1}{10}$, or in minim doses, ♏ $\frac{1}{10}$–ij. Is too irritant for hypodermic use, unless carefully neutralized by acetic acid. The Hydrobromate in watery solution of gr. viij to the ℥, of this ♏ x = gr. $\frac{1}{6}$, is a good form for subcutaneous or stomachal administration, and may be given in doses of gr. $\frac{1}{12}$ to gr. j, as it is not actively toxic.

All the preparations of Conium are uncertain in action, particularly the extract, as the active principle is very volatile. Any specimen must be carefully tested before deciding on its dosage, and if the powerful mouse-like odor of the drug be absent, it is probably worthless.

PHYSIOLOGICAL ACTION.

The special action of CONIUM and CONIÏNE is the production of motor paralysis without loss of consciousness or sensation. It paralyzes the motor nerves, the action commencing at the peripheral end-organs and extending upwards, involving the nerve-trunks and finally the centres, but the muscular irritability remains unaffected. METHYL-CONIÏNE acts similarly but reversely, affecting first the motor columns of the cord. The sensory nerves are not affected, but the general sensibility is, a feeling of numbness being experienced in the extremities.

Gastric irritation is usually the first sensation produced by a full dose of Conium, nausea and vomiting being its symptoms. Then weakness of the legs, numbness and fatigue, drooping eyelids, diplopia, slightly dilated pupils, vertigo, impaired utterance, slow and labored breathing, and if the dose be a lethal one, paralysis of the voluntary muscles, those of the lower limbs being first affected, speech and vision are lost, and finally death occurs from paralysis of the muscles of respiration. The heart is not affected and the mind remains clear, but torpid and indifferent, until carbonic acid narcosis sets in. Muscular movement counteracts the effects of the drug to a very great extent.

Conium is believed to have been the state poison of the Athenians, by the juice of which Socrates and Phocion died.

Antagonists and Incompatibles.

Nux Vomica and its alkaloids, *Picrotoxin* and other tetanizers are antagonistic. Tannic acid and caustic alkalies are chemically incompatible.

THERAPEUTICS.

Conium is especially indicated in diseases characterized by excessive motor activity. Large doses are required, as some physiological action is necessary. Children bear it well, their constant activity preventing its full action. In chorea and paralysis agitans it palliates, by depressing the motor nervous system. In acute mania and delirium tremens to quiet motor excitement and prevent exhaustion, it is remarkably efficient, especially when given conjointly with Morphine. When pain and spasm are present, it will prove a useful agent; and in tetanus, blepharospasm, asthma, whooping-cough, and other spasmodic affections it is frequently used with great benefit. The pain of cancer seems to be especially amenable to its influence when locally applied, and Coniïne-vapor is an admirable palliative of the tickling cough of phthisis and the irritability of the air-passages in acute bronchitis. In pneumonia and pleurisy the hypodermic use of Coniïne to afford the organs rest by inducing a paretic state of the respiratory muscles has been followed by a marked decrease in the temperature and pulse-rate.

CONVALLARIA,—is the rhizome and roots of *Convallaria majalis*, Lily of the Valley, a stemless perennial of the nat. ord. Liliaceæ, indigenous to Europe, Northern Asia and the Southeastern portion of the United States. The preparations in the market vary in action, according to the quantity of the Resin present, it being emeto-cathartic. Convallaria contains two glucosides, namely, *Convallamarin*, on which the cardiac action depends, and *Convallarin*, a crystalline, purgative principle, insoluble in water;—also an acrid *Resin* which probably contains the latter glucoside.

Preparations.

Extractum Convallariæ Fluidum, *Fluid Extract of Convallaria*,—is the only official preparation, and probably contains Convallarin, which is not present in aqueous preparations, being insoluble in water. Dose, ♏ ij–x.

Extractum Convallariæ (Unofficial),—prepared from the flowers and stalks with ⅓ of the leaves and root; is a black solid, freely soluble in water and alcohol. Dose, gr. ij–x.

Infusum Convallariæ (Unofficial),—prepared from the flowers, leaves and stems 25, in water 75. Dose, ℥ ss–ij.

Convallamarinum, *Convallamarin*, $C_{23}H_{44}O_{12}$ (Unofficial),—an amorphous, white, bitter powder, freely soluble in water and in alcohol, but insoluble in ether. Dose, gr. ¼–ij.

PHYSIOLOGICAL ACTION.

CONVALLARIA has long been known as a decided cathartic and a prompt and powerful diuretic, but its cardiac action has only lately excited attention, and it is now considered a close analogue of Digitalis, while free from the cumulative action which makes the latter drug so frequently a dangerous remedy.

Preparations of the root have a powerful emeto-cathartic action, probably due to a preponderance of the resin. Those freed from this ingredient correspond in action with Convallamarin, stimulate the appetite, without impairing digestion, increase peristalsis without producing catharsis, slow the heart and raise the arterial tension, also slowing and deepening respiration. Lethal doses at first produce irregularity of the cardiac action and spasm of the respiratory muscles, high arterial tension and a very rapid pulse,—followed by lowered blood-pressure, very slow and deep breathing, and finally arrest of the heart in systole. Its mode of action is by direct stimulation of the pneumogastric, the motor and sensory nerves retain their irritability, the muscles preserve their contractility, and the cerebral functions and the pupil are unaffected.

CONVALLARIN is a drastic purgative in 3-grain doses. CONVALLAMARIN is an emetic even in small quantity, and the powdered root is sternutatory.

THERAPEUTICS.

Convallaria is a heart-tonic like Digitalis, and is indicated in the same class of cases as is that drug, with the advantage that having no cumulative action it is not dangerous to the heart in medicinal doses, and does not disturb the stomach or the functions of the cerebro-spinal axis. In doses of gr. xv–xxv of the extract it slows the action of the heart and increases the force of its contractions, raises arterial tension, augments the force and volume of the respiration, and produces prompt diuresis without altering the composition of the urine. It is often a valuable remedy in mitral stenosis or insufficiency with venous stasis, dilatation of the heart, palpitation, vehement cardiac action or disordered rhythm, and in all valvular affections accompanied by dropsy and a weak heart. It has also been used with benefit in pneumonia, typhoid fever and renal dropsy. Its action is maintained for several days after its use has been suspended.

COPAIBA, Copaiba, *Balsam of Copaiba,*—is the oleoresin, of *Copaifera Langsdorffii,* and other species of *Copaifera,* a S. American tree of the nat. ord. Leguminosæ, growing chiefly in the valley of the Amazon. It is a translucent, viscid liquid, of yellow color, aromatic odor, acrid and bitter taste, not fluorescent, soluble in alcohol and benzol. It is not a balsam as it contains no cinnamic acid. Its constituents are a *Volatile Oil* and a *Resin* in about equal proportions, the latter containing nearly 99 per cent. of *Copaibic Acid.* Dose, ♏x–ʒj.

Preparations.

Oleum Copaibæ, *Oil of Copaiba,* $C_{10}H_{16}$,—the volatile oil, a pale yellow liquid, of sp. gr. 0.890, of bitter taste and neutral reaction, soluble in 10 volumes of alcohol. Dose, ♏x–xv.

Resina Copaibæ, *Resin of Copaiba,*—is the residue left after distilling off the volatile oil from Copaiba; a yellowish, brittle body, of acid reaction, soluble in alcohol, benzol or amylic alcohol. Consists mainly of Copaibic Acid, which is crystallizable, also 1½ per cent. of a viscid resin. Dose, gr. j–v.

Massa Copaibæ, *Mass of Copaiba, Solidified Copaiba,*—consists of Copaiba 94, fresh Magnesia 6, triturated with water and set aside to concrete into a pilular mass. Dose, ♏x–ʒj.

Mistura Copaibæ Composita, *Compound Mixture of Copaiba, Lafayette's Mixture* (Unofficial),—℞. Copaibæ ʒvij, Ol. Cubebæ ʒj, Glyceriti Vitelli ʒvij. Triturate and add gradually while triturating Syrupi Aq. Menth. Piperitæ ℥ijss. Then add with constant stirring Liq. Potassæ ℥ss, Tr. Cardamomi Co. ʒij, Spt. Etheris Nitrosi ℥ss, Aq. Menthæ Pip. q. s. ad ℥viij. Dose, ʒj–℥ss.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Copaiba is a stimulant diuretic, diaphoretic, expectorant, and a gastro-intestinal irritant. Its taste is bitter and nauseous. In the stomach it causes heat, unpleasant eructations, heaviness, frequently anorexia and diarrhœa, and if continued for any length of time gastro-intestinal catarrh and desquamative nephritis may result. The oil and resin diffuse into the blood and are excreted by the bronchial mucous membrane, skin and kidneys, producing increased secretion at the points of elimination. The various secretions have the odor of the drug, especially the urine. In medium doses it increases the quantity of urine and its solid constituents, but large doses will cause scanty urine, containing albumen, casts and blood, with pain in the loins and other signs of renal congestion. On the skin it often produces itching and several forms of eruption.

Copaiba has been largely used in gonorrhœa after the acute symptoms have subsided, also in chronic cystitis, acute and chronic bronchitis, and in dropsies, particularly ascites. In all these affections it is a useful remedy, but its nauseous taste and irritant effects on the stomach are driving it out of fashion, especially in private practice. One eminent surgeon declares that not only is it useless in gonorrhœa but that it does more harm than good, often prolonging the disease beyond its natural limit. In psoriasis and urticaria, and in cutaneous affections characterized by torpid peripheral circulation, this drug has been administered internally with excellent results. In long-standing cystitis in the female Copaiba has been injected into the bladder with great benefit. The resin is the most active ingredient, especially for diuretic purposes.

CORIANDRUM, Coriander,—is the fruit of *Coriandrum sativum*, a European plant of the nat. ord. Umbelliferæ. It is a minute, globular, brownish-yellow body, finely ribbed, of aromatic odor and taste, and contains a volatile and a fixed oil. Dose, gr. x–xx.

Oleum Coriandri, *Oil of Coriander*,—a volatile oil distilled from Coriander. A colorless, or pale yellowish liquid, of aromatic, bitter and pungent taste; soluble in 10 volumes of alcohol, forming a slightly turbid liquid, neutral to litmus paper. Dose, ♏ij–v.

Coriander is stimulant, aromatic and carminative. It is used almost wholly as a flavoring to other remedies, or as a corrective against the griping effects of certain purgatives. Its flavor covers the taste of Senna and Rhubarb, and it is an ingredient of the official Confectio Sennæ.

CORNUS, Dog-wood (Unofficial),—is the bark of the root of *Cornus florida*, a small tree of the nat. ord. Cornaceæ, indigenous in the U. S. Occurs in reddish-brown, curved pieces, of astringent, bitter taste, and contains a bitter principle named *Cornin*, which is crystallizable and soluble in water and alcohol; also a resin and tannic acid.

Cornus is a simple bitter, having stomachic and other qualities similar to those of Calumba (which see). In addition it is possessed of considerable antiperiodic power, and has a good deal of reputation in the Southern States as a remedy in malarial fever, the physicians of that section considering it as next to quinine in efficiency. Heat destroys its active principle, consequently a decoction is a useless preparation. A fluid extract is on the market, the dose of which is ♏x–ʒj.

COTO, Coto Bark (Unofficial),—is the bark of some unknown tree growing in Bolivia, from whence it comes in brownish pieces of aromatic odor and acrid, bitter taste. It contains an acrid, bitter principle, of yellow color, crystalline and soluble in hot water and alcohol, named *Cotoin*, $C_{22}H_{18}O_6$; also *Piperonylic Acid*, $C_8H_6O_4$, and a volatile oil, resin, etc., but no tannin. Dose, gr. j–xv.

Paracoto Bark, or *False Coto*,—is thicker than the true bark, has a fainter odor and taste, and is marked by whitish furrows on its surface. Its principle, *Paracotoin*, $C_{19}H_{12}O_6$, has a strong similarity to Cotoin therapeutically, but is less active.

A fluid extract of the official strength is prepared, also a tincture (10 per cent.), which may be administered in doses of from ♏j–xx. Cotoin is used in doses of gr. j–iv, and Paracotoin in somewhat larger quantities.

The physiological action of Coto has not been studied, all that is known about it being that it is decidedly irritant to the skin and mucous membranes. After its internal administration the urine takes a dark-red color with Nitric Acid. Ferric Chloride blackens a dilute solution of Cotoin, but has no reaction with Paracotoin.

The bark and both principles are highly recommended in diarrhœas of various forms, especially those of phthisis, typhoid fever, and cholera. In Asiatic cholera Paracotoin has been used hypodermically in 3-grain doses with success. Where there is any tendency to acute inflammation of the gastro-intestinal tract this agent must be used with caution. Small doses of the tincture (♏j–v) are said to be very effective in the diarrhœa of children.

CREOSOTUM, Creosote,—is a mixture of phenols, chiefly *Guaiacol* and *Creosol* (also *Methylcreosol* and *Phlorol*), obtained during the distillation of wood-tar, preferably of that derived from the Beech. It occurs as an almost colorless, or pinkish, inflammable, oily liquid, of smoky odor, caustic taste, and neutral reaction; soluble in about 150 of water at 59° F., and in all proportions, in absolute alcohol, ether, chloroform, benzin, carbon disulphide, acetic acid, and fixed and volatile oils. It does not coagulate albumen (?) or collodion, Carbolic Acid does. It was named from its remarkably preservative power over meat (*creas*, flesh, *sohzoh*, preserve). Much of the commercial Creosote is an impure Carbolic Acid, or a heavy oil distilled from coal-tar and containing Carbolic and Cresylic Acids. Dose, ♏j–iij, well diluted.

Preparations.

Aqua Creosoti, *Creosote Water,*—a 1 per cent. solution, containing nearly 5 minims of Creosote in each fluidounce. Dose, ʒj–iv.

Morson's Beechwood Creosote,—is best for internal use. Dose, ♏j every 3 hours, in wine or whiskey, well diluted.

Guaiacolum, *Guaiacol, Methyl Pyrocatechin,* $C_6H_4OHOCH_8$, (Unofficial),—is the most active ingredient of Creosote, of which it constitutes from 60 to 90 per cent. It occurs as a colorless liquid, highly inflammable, of a powerfully aromatic odor, and sp. gr. 1.117: very slightly soluble in water, readily soluble in alcohol. Dose, ♏j–xv, in capsules, pills, or alcoholic solution.

Guaiacoli Carbonas, *Guaiacol Carbonate,* (Unofficial),—is a tasteless and odorless, crystalline powder, insoluble in water. Dose, gr. ⅓–j, gradually increased to a maximum of 90 grains.

Benzosolum, *Benzosol, Benzoyl Guaiacol,* (Unofficial),—is prepared by heating Guaiacol with Benzoic acid, and occurs in small, colorless, odorless, and almost tasteless crystals, practically insoluble in water. Contains 54 per cent. of Guaiacol. Dose, gr. v–xv.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Creosote is expectorant, astringent, antiseptic, styptic, escharotic, anæsthetic and narcotic. Its action is practically the same as that of Carbolic Acid (see *ante*, page 64), especially upon the heart, respiration and nervous system, but differs from that of the latter in not causing convulsions, and in increasing the coagulability of the blood. It is eliminated by the kidneys and bronchial mucous membrane, which it stimulates, being quite a good expectorant. In small doses it seems to have a selective sedative influence on the terminal nerve-filaments in the gastric mucous membrane. In large doses it is a powerful poison, resembling Carbolic Acid in its symptoms, except that its nervous effects are even more marked. It explodes when combined with Oxide of Silver in pill, unless previously diluted with an inert powder.

Being a very complex substance of varying composition Creosote has been almost entirely supplanted in therapeutics by Carbolic Acid for external use, and by Guaiacol for internal administration. As an astringent it has been employed in intestinal hemorrhage, gonorrhœa and gleet, and generally in the same affections as Carbolic Acid. Externally it is a good application in eczema, pruritus, ulcers and scaly skin diseases, and it effectually relieves the pain of an exposed dental nerve if applied thereto. It is a good agent by inhalation in chronic bronchitis and gangrene of the lung, and it has been administered internally with decided benefit in abnormal fermentative processes in the stomach and intestines, in reflex nausea and vomiting, (as from sea-sickness, pregnancy, etc.):—also as an aseptic expectorant in chronic basilar cavity, in which it seems to have greater efficacy than any other remedy ; and in bronchitis, pulmonary gangrene, carcinoma of the stomach and diabetes.

In pulmonary tuberculosis, when well borne by the stomach, and continued over a long period of time, it has proved more efficient than any other remedy. Its employment in this disease is based on the statement of Guttmann, that tubercle bacilli are destroyed by blood which contains ½ per 1000 of Creosote, while even one-half that proportion arrests their growth. The commencing daily dose, of Creosote (or Guaiacol), is 2 or 3 minims, largely diluted to prevent irritation, taken after meals, and increased by the addition of one minim daily until a maximum daily dosage of 15 to 18 minims is reached, at which rate it should be continued for several months. Under this treatment cough is relieved, expectoration diminished, night-sweats are stopped, the fever lowered ; while body-weight and appetite are increased in most cases ; and in many even the local conditions are decidedly improved, as evinced by the physical signs. Recent researches indicate that the good effects of this treatment are due to the formation of soluble compounds between the remedy and the toxic albuminous by-products of the tubercle bacillus, which products are then eliminated from the blood.

GUAIACOL is preferred by many, for internal administration, instead of Creosote, being the principal ingredient of the latter, and of more definite chemical composition, though nearly or quite as irritant to the stomach. It may be given in mixture with wine or brandy, in capsules, or in combination with cod-liver oil. When neither of these agents agree with the patient, a useful and efficient substitute therefor is Guaiacol Carbonate, in doses of 6 to 8 grains, gradually increased to ʒjss daily. This preparation is well borne, as it does not irritate the gastric mucous membrane nor disturb the digestion.

Benzosol contains Guaiacol in the proportion of 54 per cent. In the intestinal canal the latter is probably set free by the action of the alkaline secretions, as Benzosol is excreted by the urine in the form of guaiacol and benzoic acid combinations. Compared with guaiacol, this agent has the advantage of being almost tasteless; hence it can be given in large doses without the digestive disturbance and disagreeable eructations produced by the parent substance when administered in liquids, and without the local irritant effect caused by the latter in capsules. In doses of 4 grains, gradually increased to 12 grains thrice daily, results have been obtained from this agent, in the treatment of phthisis, equal, if not superior, to those produced by Creosote.

CROCUS, Saffron,—the stigmas of *Crocus sativus*, a plant of the nat. ord. Irideæ, cultivated in Europe, containing a volatile oil and coloring matter. Occurs as separate stigmas or three attached to the style, of orange-brown color, peculiar, aromatic odor, and bitter taste. So called American Saffron is not Crocus but the flowers of *Carthamus tinctorius*. True Saffron is expensive, as it requires about 60,000 flowers to furnish one pound of the stigmas. Dose, gr. v–xx, in infusion.

Tinctura Croci, *Tincture of Saffron*,—10 per cent. Dose, ʒj–ij.

Saffron Tea, so much used in domestic practice, is an infusion of *Carthamus tinctorius*, the Safflower.

Crocus is a stimulant aromatic, having some antispasmodic and anodyne qualities. The hot infusion produces diaphoresis, probably by virtue of the hot water alone. It is said to have caused death with narcotic symptoms. On the continent of Europe it is employed as a stimulant and emmenagogue, but in this country its only use is as a coloring agent. The miscalled Saffron Tea noted above is used in domestic practice for measles and other exanthemata.

CUBEBA, Cubeb,—is the unripe fruit of *Piper Cubeba*, a plant of the nat. ord. Piperaceæ, cultivated in Java. Occurs as a blackish-gray, wrinkled, globular body, about the size and shape of black pepper, of strong, spicy odor, and aromatic, pungent taste. Contains a *Volatile Oil*, which is official, an acrid resin composed in part of *Cubebic Acid*, also a fatty oil, gum, and *Cubebin*, which is an insoluble, neutral, odorless and tasteless body. The volatile oil may be separated into *Cubebene* a camphor, and *Cubeben* a liquid portion. The active principles are the volatile oil and the cubebic acid, both of which are contained in the oleoresin. Cubeb should be kept whole and not pulverized until wanted for use. Dose of the powdered drug, gr. x–ʒij.

Preparations.

Extractum Cubebæ Fluidum, *Fluid Extract of Cubeb*,—Alcoholic. Dose, ♏v–xxx.

Tinctura Cubebæ, *Tincture of Cubeb*,—20 per cent. Dose, ♏x–ʒiij.

Oleoresina Cubebæ, *Oleoresin of Cubeb*,—extracted by ether. Dose, ♏v–xxx.

Trochisci Cubebæ, *Troches of Cubeb*,—each contains of the Oleoresin 4, Oil of Sassafras 1, Extract of Glycyrrhiza 25, Acacia 12, and Syrup of Tolu q. s. to form 100 troches. Dose, j–iij.

Oleum Cubebæ, *Oil of Cubeb*, $C_{15}H_{24}$.—is the volatile oil, a colorless or pale greenish-yellow liquid, of sp. gr. 0.920, warm, aromatic taste, odor of cubeb and neutral reaction. Is soluble in an equal volume of alcohol. Dose, ♏v–xx.

Cubeb belongs to the pepper family, and like black pepper is an aromatic stomachic and a stimulant diuretic in small or medium doses, but large doses derange digestion and may act as a gastro-intestinal irritant. Its constituents are eliminated by the bronchial mucous membrane, the skin and the kidneys, stimulating and disinfecting the genito-urinary passages, increasing the bronchial mucus, sweat and urine, and frequently causing an urticarial or vesicular eruption. It increases the action of the heart and of the vascular system, stimulates the venereal appetite, and promotes the menstrual discharge.

Cubeb is particularly useful in affections of the bladder and urethra. It is used in the acute stage of gonorrhœa, in chronic cystitis, prostatorrhœa and chronic bronchitis with excellent results. The powder is a good application in hay-fever, chronic nasal catarrh and follicular pharyngitis, blown on to the mucous membrane by an insufflator. It may also be smoked in cigarettes with temporary relief in cases of acute nasal catarrh with "stuffed" nasal passages. In some subjects the continued use of cubeb produces nausea, hemorrhoids, hematuria and severe headache. The troches are a useful preparation in chronic irritability of the fauces, pharynx and air-passages, and are much employed by singers and public speakers for their tonic effect on these parts and for the relief or prevention of hoarseness.

CUPRUM, Copper, Cu,—is not official, but one of its salts is, the Sulphate. The metal itself is inert, but in combination it is actively poisonous. Copper has been found in the normal human blood in very minute quantity.

Salts and Preparations of Copper.

Cupri Sulphas, *Copper Sulphate*, $CuSO_4 + 5H_2O$,—blue, translucent crystals, efflorescent, of nauseous, metallic taste and acid reaction, very soluble in water, insoluble in alcohol. Its solution is blue by transmitted light, green by reflected light. Dose, as an emetic, gr. ij–v, every 10 or 15 minutes,—as a tonic, gr. 1/6–1/2.

Alkaline Cupric Tartrate Volumetric Solution, *Fehling's Solution*,—the official reagent for glucose, is prepared as follows. (1) Dissolve 34.64 grammes of pure Cupric Sulphate, in water to measure exactly 500 cubic centimeters. (2) Dissolve 173 grammes of Potassium and Sodium Tartrate and 125 grammes of Potassium Hydrate in water to measure exactly 500 cubic centimeters. Keep the two solutions in small, rubber-stoppered bottles, separate; and for use, mix exactly equal volumes of the two at the time required. One cubic centimeter of the mixed solution is the equivalent of—

Cupric Sulphate, crystallized, $CuSO_4 + 5H_2O$, ...	Gramme,	0.03464
Cupric Tartrate, $CuC_4H_4O_6 + 3H_2O$, ...	"	0.03685
Glucose, anhydrous, $C_6H_{12}O_6$, ...	"	0.00500

Cuprum Ammoniatum; *Ammoniated Copper* (Unofficial),—is made by triturating 3 parts of Ammonium Carbonate with 4 of Cupric Sulphate until effervescence has ceased, then drying. A deep azure blue powder, of ammoniacal odor, a styptic, metallic taste, and alkaline reaction, soluble in water. Dose, gr. 1/6–j.

Cupri Arsenis, *Copper Arsenite.* See *ante*, page 132.

PHYSIOLOGICAL ACTION.

The salts of Copper are gastro-intestinal irritants, producing a metallic taste, nausea with greenish vomited matter, purging of blood and mucus, constricted fauces, depressed heart action, hurried respiration and fever. Or, as with Arsenic, gastro-enteritis may not occur, but instead profound nervous symptoms, as headache, defective coördination, coma and convulsions. The symptoms of chronic poisoning are bronchial irritation and catarrh, gastro-intestinal catarrh, colic with diarrhœa [Lead produces colic with constipation], dysentery, nausea, emaciation, anæmia, salivation, and a green line (sulphide) along the margin of the gums in those who do not clean their teeth. The nervous symptoms above mentioned are also usually well marked. The liver becomes atrophied from irritation of its connective tissue and fatty degeneration of the hepatic cells. The lungs are congested, even pneumonic consolidation may be set up, the metal seeming to have affinity for the parenchyma of these organs. These effects are often produced by the inhalation of cuprous fumes, and by eating acid fruits cooked in a copper vessel.

COPPER SULPHATE is a simple, irritant emetic, producing prompt and continued vomiting with but little nausea or depression. In small doses it is a nerve-tonic, and is astringent to the gastro-intestinal tract. Externally applied in solution it is a useful stimulant and astringent to diseased mucous surfaces, and is mildly caustic if used in substance. The ACETATE is possessed of the same general action as above described. Its local action is stimulant and escharotic. The impure acetate (verdigris) is a violent irritant poison. AMMONIATED COPPER has no special action other than above noted.

Antagonists and Antidotes.

Potassium Ferrocyanide is the antidote to Copper salts, but Albumen or Magnesia may be used. Any chemical antidote should be followed by prompt evacuation of the stomach, then *Opium* and demulcents for gastro-enteritis, and *Potassium Iodide* even to saturation of the system. Alkalies and their Carbonates, Lime-water, Iodides, and Mineral Salts (except the sulphates), are all incompatible.

THERAPEUTICS.

The Sulphate is a prompt and efficient emetic, and is so used in croup and narcotic poisoning. In phosphorus poisoning it forms a comparatively insoluble phosphide of copper besides producing emesis. Fifteen or twenty grains may be dissolved in ℥iv of water, and a teaspoonful or more, according to age, given every ten minutes until vomiting is produced. In acute diarrhœa and chronic dysentery it is the best metallic astringent in doses of gr. $\frac{1}{10}$ to $\frac{1}{12}$ with Opium, and in gastro-intestinal catarrh it is equally efficient. Locally, it is used with benefit in throat affections, gonorrhœa, granular lids and corneal ulcers, indolent granulations and chronic inflammations of mucous membranes. In most of these affections weak solutions (gr. $\frac{1}{8}$ to $\frac{1}{4}$ to the ℥) are best, but in granular conjunctivitis the smooth crystal may be rubbed quickly over the surface once daily.

In various nervous diseases, as epilepsy, chorea, hysteria, etc., the salts of copper are sometimes beneficial, the Ammoniated Copper being considered the most efficient preparation in these cases. In Germany a tincture of the Acetate was official and has been used successfully in the treatment of pneumonia. Ammoniated Copper has lately been highly recommended for facial neuralgia, but requires pushing to the production of some physiological action.

Ointments or lotions of the Acetate are useful applications in eczema, herpes, tinea sycosis, mentagra and herpes circinatus.

Villate's Solution has been successfully used as a local injection for the cure of caries. It is composed of Copper Sulphate, Zinc Sulphate, of each 15 parts, Liquor Plumbi Subacetatis 30, Vinegar 200. The solution is thoroughly injected into the sinuses leading to the carious bone.

CURARE, Woorara (Unofficial), is a vegetable extract obtained from various members of the Strychnos family, also from *Paulinia curare* and other plants. It is used in S. America as an arrow-poison under various names, as *Caroval*, *Vao*, etc. Its active principle is the crystallizable alkaloid *Curarine*, which contains no oxygen.

The dose of Curare is gr. $\frac{1}{20}$–$\frac{1}{6}$ hypodermically,—of Curarine, gr. $\frac{1}{200}$–$\frac{1}{100}$ hypodermically, or gr. $\frac{1}{100}$–$\frac{1}{40}$ by the stomach, but as the samples vary greatly in activity they should first be tried on some inferior animal before being administered to man.

PHYSIOLOGICAL ACTION.

Curare is a paralyzer of the voluntary muscles, affecting them through the end-organs of the motor nerves. It does not at first act upon the brain or spinal cord, but if life be prolonged by artificial respiration the cord, sensory nerves and even the muscular tissue all become affected. The heart, at first quickened, becomes depressed, and the blood-pressure is lowered, the eyelids droop, the eye-balls protrude, vision is disordered, intestinal peristalsis and sensibility to stimuli are greatly increased, and an artificial glycosuria (curare-diabetes) is set up. The limbs are paralyzed first, death occurring by paralysis of respiration. The absorption of the drug by the stomach is very slow, as its active principle passes with difficulty through animal membranes, and its elimination, which takes place by the kidneys, being more rapid and complete than that of any other agent, no marked effect may be produced when administered internally. When hypodermically injected its action is very prompt. The urine of a curarized animal will poison another, and that of the second will paralyze a third.

As compared with other motor depressants Curarine and Coniïne paralyze the end-organs of the motor nerves, Gelsemine and Methyl-coniïne paralyze the motor centres.

Antagonists and Incompatibles.

Strychnine, though from a member of the same family, is antagonistic as to the action on the heart and respiration. So also is *Atropine*. Artificial respiration is the most efficient antagonist, maintaining life until elimination occurs. Evacuation of the bladder repeatedly is important to prevent reabsorption. The caustic alkalies destroy Curarine as they do all other alkaloids.

THERAPEUTICS.

Curare is chiefly used for experimental purposes on the lower animals. It has an historical interest from its having been the means by which Bernard demonstrated the existence of muscular contractility as an essential endowment of that tissue. It has been used with some success in spasmodic nervous affections, particularly in tetanus, both idiopathic and traumatic, in hydrophobia, chorea and epilepsy. It does not promise well as a therapeutic agent, but undoubted cases of hydrophobia are reported by high authority as cured by this drug.

CUSSO, Kousso, *Brayera*,—is the female inflorescence of *Hagenia abyssinica*, an Abyssinian tree of the nat. ord. Rosaceæ. It occurs in bundles or rolls, of fragrant, tea-like odor, and bitter, nauseous taste, and contains tannic acid, a volatile oil, and a crystalline principle named *Koussin*, which by itself is apparently inert. Dose, of Cusso, ʒij–℥j.

Extractum Cusso Fluidum, *Fluid Extract of Kousso*.—Dose, ʒij–℥j.

Cusso has little or no effect except the nausea, vomiting, colic and slight diarrhœa produced by large doses. Its chief action is anthelmintic against both varieties of tapeworm, but it rarely expels the head of the parasite, and is very nauseous to the taste and difficult of retention by the stomach in the large doses necessary to efficiency. ʒij to ℥j of the flowers infused in ℥iv of boiling water is the usual dose, and should be taken on an empty stomach and followed by a castor-oil or saline purge after 3 or 4 hours. An emulsion of a 6 per cent. infusion with castor-oil, yolk of egg, a few drops of ether and oil of anise with 10 to 20 drops of Oleoresin of Male-fern, is more agreeable and efficient than the infusion alone.

CYDONIUM, Quince Seed (Unofficial),—is the seed of *Cydonia vulgaris*, a tree of the nat. ord. Rosaceæ, native in Crete and Austria, and cultivated elsewhere. The seeds are about ¼ inch long, triangularly compressed, covered with a whitish epithelium, and in water they swell up forming a mucilaginous mass. The mucilage is the only constituent of importance and is contained in the epithelial cells. It has been named *Cydonin*, and considered to be a compound of gum and cellulose.

Mucilago Cydonii, *Mucilage of Cydonium* (Unofficial),—is prepared by macerating 2 parts of Cydonium in 100 of Distilled Water. Dose, indefinite.

Cydonium is of value for its mucilage, which is used as a bland, demulcent application in conjunctivitis, abrasions of the skin, and fissures of the mucous membranes, and as a vehicle for injections in gonorrhœa. Internally it may be used as a soothing remedy for the throat, stomach, or intestines. The preparation known as *Bandoline*, used as a hair-dressing, is identical with mucilage of Cydonium.

CYPRIPEDIUM, Ladies' Slipper,—is the rhizome and roots of *Cypripedium pubescens*, and of *C. parviflorum*, the Moccasin-plant, or American Valerian (nat. ord. Orchideæ). Is dark or orange-brown in color, of strong, heavy odor, and bitter, pungent taste. It contains a volatile oil, a volatile acid, resins, and tannin.

Extractum Cypripedii Fluidum, *Fluid Extract of Cypripedium.*—Dose, ♏x–xxx.
Cypripedin (Unofficial),—is an impure alcoholic extract. Dose, gr. ss–iij.

Cypripedium is antispasmodic, tonic, stimulant and diaphoretic, possessing the same general properties as Valerian, whence one of its common names, American Valerian. It is a popular remedy in some parts of the U. S. for nervous hyperæsthesia unaccompanied by organic lesion, especially morbid sensibility of the eye. It is reported to have even cured epilepsy, and to be highly useful in neuralgia, hysteria, nervous headache and insomnia.

DAMIANA (Unofficial),—the leaves of *Turnera aphrodisiaca*, a plant of the nat. ord. Turneraceæ, growing in Mexico and Lower California. Several varieties of so-called Damiana are in the market, but the true leaf is of a light-green color, small, lanceolate, and dentate along the margin. It contains a volatile oil and a resin. Dose, ℥j daily.

Extractum Damianæ, *Extract of Damiana* (Unofficial).—Dose, gr. ij–x.
Extractum Damianæ Fluidum, *Fluid Extract of Damiana* (Unofficial).—Dose, ♏x–ʒj.

Damiana is said to be a powerful aphrodisiac in cases of sexual atony, but the published reports of its use since its introduction vary greatly as to its efficacy. It is probably a stimulant diuretic, a bitter tonic, and a purgative in sufficient doses.

Besides its use as an aphrodisiac Damiana has been administered with benefit in some forms of cerebral exhaustion and general atony of the nervous system, also in sick headaches and in some few cases of paralysis. It forms the chief stock in trade of the numerous charlatans who fill the daily papers with advertisements of "manhood-restorers."

DATURA TATULA (Unofficial),—is an indigenous plant of the nat. ord. Solanaceæ, resembling Stramonium very closely, with which it generally agrees in its physiological action and therapeutics. It is distinguished by its purple stem, purple flowers and anthers, and the darker green of its leaves. It probably contains the alkaloid *Daturine* (see STRAMONIUM),—and has been smoked in asthma, in a few cases giving continued relief when Stramonium had failed to render any service.

DIGITALIS, Foxglove,—Digitalis consists of the leaves, collected from plants of the second year's growth, of *Digitalis purpurea*, the Purple Foxglove, a plant of the nat. ord. Scrophularineæ, which grows wild in Europe, and is cultivated in this country, often in private gardens for its beautiful spike of purple flowers, and largely by the Shakers for the drug market.

The British Phar. directs that the official drug shall consist of "the dried leaf, collected from the *wild*, indigenous plant, when about two-thirds of the flowers are expanded." Much of the leaf found in our shops is of very poor quality, a large proportion being inert; but whether this is due to our Phar. not restricting the official drug to the wild plant, or to careless treatment in gathering and drying, is not definitely known. When, however, the leaves are imperfectly dried, a process of decomposition sets in, which destroys the active principles, and may produce new and poisonous ones. A similar decomposition is said to occur whenever the tincture of Digitalis is mixed with watery or syrupy solutions. Certain it is, at any rate, that Digitalis is one of the most unreliable drugs, in respect to the physiological activity of any particular sample or preparation. The seeds are known to contain the active principle in much greater proportion than the leaves, but they are never used.

Constituents.

The active principle of Digitalis was first designated by the term *Digitalinum* (Digitalin), under which name a substance was official in the U. S. Phar. and a process was given therein for its extraction, until the revision of 1880, when it was omitted. It was an amorphous product, of complex composition, and did not represent Digitalis.

In 1871 Nativelle received the Orfila prize from the French Academy for the discovery of a crystalline principle in Digitalis, which he named *Digitaline.* This was supposed to be the active principle of the plant, until Roucher, (1872) and Schmiedeberg, (1875) found it to be a complex body, consisting of a mixture of Digitoxin and Digitalin. Schmiedeberg's latest analysis is now accepted as the most accurate determination yet obtained of this vexed question. He enumerates five principles at least as contained in Digitalis, viz.:—(1) *Digitalin,* amorphous, insoluble in water, but readily soluble in alcohol; the active ingredient of Homolle's French Digitaline and the Digitalin of the U. S. and Br. Pharmacopœias;—(2) *Digitoxin,* insoluble in water and sparingly soluble in alcohol; the most active of all, and the principal constituent of Nativelle's prize Digitaline;—(3) *Digitaleïn,* soluble in both water and alcohol;—(4) *Digitonin,* readily soluble in water, sparingly so in alcohol;—active, but acts like *Saponin,* forming a solution which froths easily and antagonizes the other three;—(5) *Digitin,* which seems to be entirely inert. The first three are active cardiac stimulants and highly poisonous. The fourth is a direct depressant of the heart, antagonizing the stimulant action of the others. All five are non-nitrogenous, and, except Digitin, are glucosides. Digitalis contains no alkaloid.

Preparations.

Digitalis, *Digitalis,*—the powdered leaves. Dose, gr. ss–iij.

Extractum Digitalis, *Extract of Digitalis,*—By maceration and percolation in Alcohol 2, Water 1, distilling off the alcohol, and evaporating the residue. Dose, gr. ¼–j.

Extractum Digitalis Fluidum, *Fluid Extract of Digitalis,*—By maceration and percolation in Alcohol 2, Water 1, and evaporation to the required strength. Dose, ♏ss–iij.

Tinctura Digitalis, *Tincture of Digitalis,*—Digitalis 15, Diluted Alcohol to 100. By maceration and percolation. Dose, ♏v–xxx.

Infusum Digitalis, *Infusion of Digitalis,*—Digitalis 1½, Alcohol 10, Cinnamon Water 15, Boiling Water 50, Water to 100. By maceration in boiling water. Dose, ʒj–iv. Notice that the dose is in drachms, not in ounces.

Digitalinum, *Digitalin,*—is the complex product of the process formerly official in the U. S. and Br. Phar. Dose, gr. $\frac{1}{60}$–$\frac{1}{30}$.

Homolle's (or Quévenne's) Digitalin (Unofficial),—is much used in France in form of granules. Consists chiefly of Digitalin with a little Digitoxin, and possesses the action of the leaves. An amorphous, yellowish-white powder or small scales, intensely bitter, inodorous, but irritant to the nostrils. Dose, gr. $\frac{1}{65}$, equal to about gr. jss of the powdered leaves.

Nativelle's Digitalin,—consists largely of Digitoxin, and is cumulative in action. Light, white, crystalline tufts of needles, of very bitter taste; soluble in alcohol, insoluble in water. Dose, gr. $\frac{1}{60}$–$\frac{1}{30}$ in pill.

Note on the Preparations. The *Tincture* and *Fluid Extract,* being alcoholic preparations, contain a large proportion of Digitalin and Digitaleïn, with a small proportion of Digitoxin and Digitonin. On the addition of water thereto, the Digitoxin is precipitated to the bottom. The *Infusion* contains a large proportion of Digitonin, some Digitaleïn, and little or no Digitalin or Digitoxin. The Infusion is the best preparation for diuretic purposes, the Tincture for cardiac action; but to obtain the action of the plant itself the powdered leaves must be used in pill or capsule. To obtain the best action of the Tincture on the heart, it should be administered without admixture, or at least, with water alone, the latter being added immediately before ingestion and any precipitate being also swallowed.

PHYSIOLOGICAL ACTION.

Digitalis is a cardiac tonic, a vascular stimulant, and an excito-motor, also emetic, diuretic, hemostatic, anaphrodisiac, and paralyzant. In over-doses it irritates the mucous membranes, causing sneezing, severe gastric disturbances, nausea, vomiting, colic and purging, the discharges being of a grass-green color. It lowers temperature, probably by lessening the blood-supply to the tissues, produces headache, irregularity of the heart's action, vertigo and an appearance of vibratory fringes of color around objects.

The Heart is slowed by Digitalis, but its force is at the same time increased. The drug stimulates the cardiac muscle and its inhibitory apparatus; also the vaso-motor centres, contracting the arterioles, and thereby greatly raising the arterial tension. Full doses continued exhaust the irritability of the motor ganglia and paralyze the cardiac muscle itself. The recumbent posture must be maintained when Digitalis is given for its full cardiac effects. Its final effect on striped muscular tissue is to lessen the contractile power, causing great weakness and languor. Under it, the excretion of urea is at first increased, but soon decidedly diminished. It lessens the sexual appetite and impairs the venereal function.

It has been conclusively shown that in many cases of pneumonia Digitalis failed to influence the pulse, the result probably of the partial paralyzant influence of high body temperature upon the vagus centre and endings in the heart, thus weakening the inhibitory apparatus to such a degree that the drug awakens no responsive increase of inhibition. In cases with but moderately high pyrexia the characteristic action of the drug is not interfered with.

The Diuretic Action of Digitalis is due to its peculiar influence upon the general and renal circulation, it increasing the force of the ventricular contractions, while at the same time one of its constituents, *Digitalin*, contracts the blood-vessels of the body, and two others, *Digitoxin* and *Digitaleïn*, dilate the renal arteries. The effect of this combined action is to greatly raise the arterial tension and the blood-pressure in the glomeruli, their afferent vessels being contracted;—while the rapidity of the renal circulation is increased and its volume augmented by the greater force of the heart-beat and the dilatation of the afferent vessels. No other drug known has this double power, and therefore, so far as vascular action is concerned, Digitalis is the ideal diuretic. Still, while its power to produce diuresis in cardiac disease is unquestioned, most observers deny that it has any such power in health.

Lethal doses lessen the reflexes by stimulation of Setschenow's centre, and paralyze the muscles and the peripheral nerves, motor and sensory. Respiration, at first slowed, becomes rapid and feeble; cyanosis, coma and convulsions follow, and death by sudden paralysis of the heart, which is arrested in systole.

Compared with Aconite, both it and Digitalis slow the heart, but otherwise their actions are antagonistic. Aconite at first stimulates and soon relaxes inhibition and depresses the cardiac motor ganglia,—Digitalis increases inhibition and stimulates the cardiac muscle. Both drugs finally paralyze the heart, Aconite by direct depression of its motor ganglia, Digitalis by over-stimulation of the cardiac muscle. Under Aconite the heart is arrested in diastole, under Digitalis in systole. The arterial tension is lowered by Aconite, raised by Digitalis. Aconite acts quickly, Digitalis very slowly,—a fact which makes the latter drug of little value in poisoning by the former.

During the use of this drug for any length of time the muscle of the heart is so nearly paralyzed by over-stimulation that on suddenly assuming the erect position the cardiac energy may fail, more especially if the doses are administered too closely together to admit of the elimination of one before the ingestion of the next. This is the explanation of the so-called cumulative action of Digitalis, which is not now generally recognized in the sense in which the term was formerly applied. Another explanation is that it may stop its own excretion, by arresting the renal circulation and the secretion of urine through extreme contraction of the renal vessels, and thus may really accumulate in the blood.

Antidotes, Antagonists and Incompatibles.

Tannic Acid is the chemical antidote, but as the tannate is not inert the stomach should be evacuated. *Aconite* is the best antagonist to the effects of large doses, *Opium* to those of its long continued use. *Saponin* and *Senegin* are considered to be its most complete physiological antagonists. Incompatibles are Cinchona, Iron Sulphate, Tincture of Ferric Chloride, and Lead Acetate, also syrupy and watery solutions which may decompose the active principles of the plant.

THERAPEUTICS.

The employment of Digitalis in disease is chiefly based on its action as a cardiac tonic and a diuretic. The forms of heart disease in which it is indicated are the affections of the two auriculo-ventricular orifices, *i. e.*, mitral and tricuspid disease, whether regurgitant or obstructive in character. It is contra-indicated in aortic disease, except for special symptoms, and in fatty degeneration of the cardiac muscle. Its greatest sphere of usefulness is *Mitral Regurgitation*, especially when accompanied by venous engorgement and œdema of the lungs, the right heart, the liver, kidneys and subcutaneous tissues. In such cases its action is shown to striking advantage, ameliorating all the symptoms by assisting the flow of blood in the veins. By prolonging the diastole, it gives time for the dilated auricle to empty itself through the incompetent orifice; and by strengthening the contraction of the left ventricle, it causes the better approximation of the mitral flaps, consequently less regurgitation, less venous engorgement, and the propulsion of more blood into the arterial system. If it also acts as a diuretic, as it usually does in these cases, the diuresis will tend to remove the œdema; and the general improvement in the circulation produced by it will relieve the cardiac pain and distress, the dyspnœa and cyanosis. The less a case of mitral regurgitation approaches the œdematous type, the less good will Digitalis do, as a rule.

In *Mitral Constriction* Digitalis is usually of great assistance, the lengthened diastole giving more time for the blood to pass through the narrowed orifice, and the increased force of the auricular contraction helping in the same direction.

In *Tricuspid Regurgitation* or *Constriction*, Digitalis is beneficial in the same manner as in disease of the mitral valve. It is particularly useful in dilatation of the right side of the heart with incompetence of the tricuspid. The rational symptoms which indicate its use are—rapid and feeble cardiac action, low arterial tension, cough, dyspnœa, pulsating jugulars, a dusky face, scanty and high-colored urine and general dropsy.

In *Aortic Regurgitation*, Digitalis is generally injurious; the prolonged diastole giving more time for the blood to regurgitate through the imperfectly closed orifice, and thus increasing the danger of fatal syncope. It may do good, if compensatory hypertrophy has not set in, if the heart is feeble and its action rapid, or when there is but little blood regurgitating, or when there are reasons, such as the coincident presence of aortic obstruction, for wishing to strengthen and regulate the contraction. In any case, the dose must be a small one, and its effects must be carefully watched.

In *Aortic Constriction*, Digitalis is generally contra-indicated, especially when, as is usually the case, this lesion is accompanied by aortic regurgitation. It may be of service, however, when the force of the heart-beat requires strengthening; or when, as a result of the obstruction, mitral dilatation has set in, with much regurgitation, and the consequent venous and pulmonary engorgement. It should not be used in aortic stenosis with compensatory hypertrophy, in simple hypertrophy when compensated, in pericarditis or in fatty degeneration of the heart, except temporarily for some special indication.

In the irritable heart of soldiers Digitalis is often curative, and palpitation, cardiac failure and venous engorgement are well treated by it. In exophthalmic goitre it has apparently benefited some cases, when used over a long course of treatment; but, as a rule, this affection is not amenable to its influence.

When the cardiac action of Digitalis is desired, the tincture should be employed, given on sugar or bread, prohibiting the ingestion of any aqueous fluid within 20 minutes either before or after swallowing it. If the diuretic action is required, the proper preparation is the infusion, which contains a much larger proportion of Digitonin than of the other principles. This agent, acting upon the renal apparatus and antagonizing the action of the other three, is freely soluble in water, but sparingly so in alcohol. On the other hand, Digitalin, to which the cardiac action of the drug is chiefly due, is almost insoluble in water, but readily soluble in alcohol; and Digitoxin, the most active constituent, is insoluble in water, though somewhat soluble in alcohol.

In *Bright's Disease* Digitalis is not a suitable diuretic. It has been used in the early stage of the acute form, but it is very questionable practice to dilate the vessels of any acutely inflamed organ. Moreover, in such cases the arterial tension is always somewhat raised, and this drug only aggravates that condition. In chronic Bright's disease it is still more injurious, for the same reason, the arterial tension being very high therein. It may be of service, however, in cases of renal cirrhosis, when the cardiac hypertrophy has failed to overcome the peripheral resistance, and consequently there is dilatation of the left ventricle and the left auriculo-ventricular orifice, with the resulting mitral regurgitation. In such cases, a diuretic pill is frequently of service, consisting of Digitalis leaves in powder, Calomel and Squill, a grain of each, made into pill with extract of Hyoscyamus.

Digitalis is always an uncertain diuretic unless the heart is diseased; yet it has rendered good service in renal dropsy as well as in the cardiac form. Its contractile power over the arteries may so predominate as to arrest the renal circulation completely, and stop the secretion of urine (Brunton.) On this account it is well to administer at the same time an agent which causes dilatation of the renal vessels, as Sodium Nitrite. It has been employed with benefit in the early stage of scarlet fever, and when the kidneys strike work in that disease. As a hemostatic it may be used in hemorrhage from a large surface, in the hemorrhagic diathesis, hemoptysis, and menorrhagia. As an antipyretic it has been much used in fevers, in the first stage of pneumonia, and in other inflammations, but a reaction is setting in against this employment of so powerful a heart-depressant. In rheumatic fever it lowers the temperature, shortens the duration of the disease, and is particularly indicated for any cardiac complications. It was formerly much used in delirium tremens, in congestive headaches, acute mania and other congestive conditions of the brain, but generally without much benefit. In spermatorrhœa of the plethoric it may be well combined with Potassium Bromide, and when this affection is complicated with an atonic condition, shown by feeble erections, frequent emissions and cold feet and hands, it is a serviceable anaphrodisiac. Finally, Digitalis is said by high authority to be particularly adapted to blondes and persons of sanguine and indolent temperament. Sometimes the vomiting caused by it is so severe as to prevent its use.

DIOSCOREA, Wild Yam, Colic-root (Unofficial),—is the rhizome of *Dioscorea villosa*, a creeping plant of the nat. ord. Dioscoraceæ, indigenous to the eastern U. S. It contains an acrid resin, and is reported to be expectorant and diaphoretic in action, as well as stimulating to the intestinal canal, and in large doses to cause general neuralgic pains with erotic excitement. It is used with great success in bilious colic; and in the cramps of cholera morbus, spasmodic hiccough, dysmenorrhœa and nocturnal emissions of sthenic type it is said to be very efficient. A powdered extract named *Dioscorein* is on the market, of which the dose is gr. j–iv. A fluid extract made according to the pharmacopœial rule may be administered in doses of ♏ xv–xxx.

DITA BARK (Unofficial),—is the bark of *Alstonia scholaris*, a tree of the nat. ord. Apocynaceæ, growing in the Philippine Islands. It contains two active alkaloids, *Ditaine* and *Ditamine*, the former of which has an action identical with that of Curare. The bark is considered tonic and antiperiodic, and is used in the East as a remedy for intermittents. It may be given in doses of ʒj–iv, in powder or as fluid extract.

DROSERA, Sundew (Unofficial),—A fluid extract of *Drosera rotundifolia*, the round-leaved Sundew, is said to have been successfully used in phthisis pulmonalis. It is certainly a most useful agent in whooping-cough and other spasmodic coughs; especially when marked by violent paroxysms, the cough being loud and harsh, and followed by bleeding from the nose or mouth, and perhaps by vomiting of the contents of the stomach. The expressed juice has been applied to warts and corns, for the purpose of curing them. Dose of the fluid extract, ♏ v–xx.

DUBOISIA (Unofficial),—is the leaf of *Duboisia myoporoides*, an Australian tree of the order Solanaceæ. It contains a poisonous alkaloid, *Duboisine*, which is believed to be identical with Hyoscyamine, and strongly resembles Atropine.

Preparations.

Extractum Duboisiæ, *Extract of Duboisia* (Unofficial),—Dose, gr. $\frac{1}{6}$–$\frac{1}{4}$.
Tinctura Duboisiæ, *Tincture of Duboisia* (Unofficial),—Dose, ♏ v–xx.
Duboisinæ Sulphas, *Duboisine Sulphate* (Langenberg's), Unofficial,—Dose, gr. $\frac{1}{120}$–$\frac{1}{60}$

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The actions of Duboisia are in all respects similar to those of its congener, Belladonna, except that Duboisine is more soluble in water than Atropine, is less irritating to mucous membranes, and more prompt in mydriatic action, but its effects are of shorter duration.

It is also less of a cerebral excitant and more of a calmative and hypnotic. On man its action is said by some authorities to be more powerful than that of Atropine, but less powerful on frogs.

Duboisine has not been much used except by ophthalmologists, who employ it as a mild mydriatic. Its advantages over Atropine in ocular therapeutics are its more rapid action in paralyzing accommodation and effecting mydriasis, the shorter duration of its effects and its slight irritation of the conjunctiva. It has been well employed in puerperal mania, and may be used in place of Atropine in many conditions, especially the night-sweats of phthisis, respiratory neuroses and cardiac failure. It is an efficient antagonist to Morphine. Its antagonists and incompatibles are the same as for Belladonna, which see, *ante*, page 143.

DULCAMARA, Bittersweet,—the young branches of *Solanum Dulcamara*, or Woody Night-shade, a shrub of the nat. ord. Solanaceæ, growing in Europe and N. America. Occurs in short sections ¼ inch thick, covered with a pale green bark, of slight odor, and taste at first bitter, afterwards sweet. It contains the glucoside *Dulcamarin*, a peculiar principle named *Picroglycion*, and the alkaloid *Solanine*, which exists in the stems of other species of Solanum, viz.—*S. tuberosum* (potato), *S. Lycopersicum* (tomato), and *S. nigrum* (black nightshade). Solanine is of bitter taste, alkaline reaction, crystalline in minute prisms soluble in 125 of boiling alcohol but very insoluble in water. It is a narcotic poison, but exists in very small quantity in the plant.

Preparations.

Extractum Dulcamaræ Fluidum, *Fluid Extract of Dulcamara*,—Dose, ʒj.

Decoctum Dulcamaræ, *Decoction of Dulcamara* (Unofficial),—may be made of 10 per cent. strength and given in doses of ℥j–ij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Dulcamara is but imperfectly understood. In overdoses it has produced nausea and vomiting, vertigo, convulsive muscular movements, pruritus and erythematous eruptions on the skin, languid circulation with a dusky color of the face and hands. In children who have eaten the berries there have been observed signs of severe enteralgia, abdominal tenderness, nausea, thirst, heat in the throat and chest, great prostration, rapid pulse, quick and painful respiration. In very large doses it is a narcotic poison, causing paralysis by depression of the central nervous system, with lowered activity of the heart and respiration. It is believed by some authorities to be anaphrodisiac, diaphoretic and diuretic.

Dulcamara was formerly used in a variety of affections, as herpetic diseases, chronic rheumatism, gout, jaundice, etc. It is now chiefly employed in obstinate scaly skin diseases, as psoriasis and pityriasis, in which it is unquestionably serviceable. It is also serviceable in the diarrhœa of children when produced by exposure to cold and damp, in mania with strong venereal propensities, chronic bronchitis and whooping-cough. As a diaphoretic it has been used with benefit in rheumatic and venereal disorders, and is often beneficial in nasal, pulmonary and vesical catarrhs. It is said to be particularly useful in affections of a rheumatic or catarrhal nature when caused by exposure to damp weather.

ELASTICA, India-rubber (*Caoutchouc*),—is the prepared milk-juice of various species of *Hevea* (nat. ord. Euphorbiaceæ), growing in S. America, and being known in commerce as Para Rubber. It is very elastic, insoluble in water, diluted acids, or diluted solutions of alkalies, soluble in chloroform, carbon disulphide, oil of turpentine, benzin and benzol. When pure, or nearly pure, it floats on water.

India-rubber is a carbohydrogen, and may be combined with sulphur by the aid of heat (vulcanized), which process, long continued, converts it into hard rubber. It is used in the fabrication of catheters, bougies, pessaries, court plaster, bandages, elastic stockings, tubing, etc. An analogous substance is Gutta-percha, which was official in the U. S. Phar., 1880.

Gutta-percha (Unofficial),—is the concrete exudation of *Isonandra gutta*, a large tree of the nat. ord. Sapotaceæ, growing in the Malay peninsula and adjoining islands. Occurs in tough but somewhat flexible pieces, of grayish or yellowish color, plastic above 140° F., soft at 212° F., insoluble in water or alochol, soluble in chloroform, oil of turpentine, carbon disulphide, benzin and benzol. It contains a hydrocarbon, *Gutta*, $C_{10}H_{16}$ (80 per cent.), two Resins named *Fluavil* and *Albau*, also a volatile oil, salts, fat and coloring matter.

Preparations.

Liquor Gutta-perchæ, *Solution of Gutta-percha* (Unofficial),—Gutta-percha 9, Carbonate of Lead 10, in Chloroform 91. Used as a protective application to eruptions and slight wounds, the evaporation of the menstruum leaving behind a thin adhesive and non-irritating pellicle.

Traumaticin (Unofficial),—is the name given to a 10 per cent. solution of Gutta-percha in Chloroform, which forms on drying a permanent, unirritating, adhesive, flexible and non-contractile skin for the treatment of skin affections and slight wounds. It forms an excellent basis for the application of Chrysarobin to psoriasis.

Gutta-percha has neither physiological action nor therapeutics, being used for its physical qualities alone. In surgical practice it has several applications, making a good material for splints, as it can be softened in hot water and adapted to any surface while pliable. From it are manufactured pessaries, specula, stethoscopes and other instruments. The solution may be used as a protective covering for excoriations and slight wounds, to prevent pitting in small-pox, and to paint over the line of suture after post-mortem examinations.

ELATERINUM, Elaterin, $C_{20}H_{28}O_5$,—is a neutral principle extracted from *Elaterium*, a substance deposited by the juice of the fruit of *Ecballium Elaterium*, or Squirting Cucumber, a cultivated European plant of the nat. ord. Cucurbitaceæ. Elaterium is no longer official by reason of its variable quality. Elaterin occurs in small, colorless scales or prisms, of bitter taste and neutral reaction, insoluble in water, soluble in 337 of alcohol and in solutions of the alkalies. Dose, gr. $\frac{1}{20}$–$\frac{1}{12}$.

Preparation.

Trituratio Elaterini, *Trituration of Elaterin,*—Elaterin 10, Sugar of Milk 90. thoroughly mixed by trituration. Dose, gr. ss–j.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Elaterin is the most powerful of the hydragogue cathartics, causing profuse, watery stools, and when given in large doses great prostration and gastro-intestinal irritation, nausea and vomiting. On the lower animals it does not produce purgation, but profoundly impresses the nervous system, causing irregular breathing, convulsions and death.

Its chief use is to produce free watery discharges in ascites, anasarca, uræmia and cerebral disorders, but while the most efficient agent we possess for this purpose it must be used with great caution in the aged and feeble, as it is very depressant.

ERGOTA, Ergot, *Ergot of Rye,* — is the sclerotium (compact mycelium or spawn, intermediate fibrous stage) of *Claviceps purpurea* (class Fungi), growing within the flower and replacing the grain of Rye, *Secale cereale,* (nat. ord. Gramineæ). It occurs in fusiform, curved, grain-like bodies, about an inch long, three-furrowed, obtuse at the ends, of purplish-black color, peculiar and heavy odor, and oily, disagreeable taste. It should be only moderately dried, and should be preserved in a close vessel, and have a few drops of chloroform dropped upon it from time to time, to prevent the development of insects. When more than one year old it is unfit for use. Dose, gr. x–ʒj.

Composition of Ergot.

The composition of Ergot and the nomenclature of its supposed constituents is a subject upon which there exists a great diversity of opinion, and about which there is nothing settled. The following synopsis gives the views of the different persons who have examined into the matter.

WENZELL (1864) named two alkaloids, *Ecboline* and *Ergotine,* which he claimed to be the active principles, and to be combined with *Ergotic Acid,* a volatile body yielding crystallizable salts. He also claimed the presence of Trimethylamine as a Phosphate.

TANRET (1877) isolated a crystallized alkaloid, which he named *Ergotinine,* $C_{35}H_{40}N_4O_6$ (dose, gr. $\frac{1}{60}$–$\frac{1}{10}$), also a volatile camphoraceous substance.

DRAGENDORF and his pupils (1875–1879) stated the active principles to be two in number, *Sclerotic* or *Sclerotinic Acid,* a very powerful body, yellow-brown, amorphous, tasteless and well adapted for hypodermic use in doses of gr. $\frac{1}{20}$–$\frac{1}{10}$, and *Scleromucin,* a colloid substance, also quite active. Besides these they held that Ergot contained various coloring matters (Sclererythrin, Scleroxanthin, etc.), also a non-drying Oil, a peculiar sugar (Mykose), a number of alkaloids (Trimethylamine, etc.), and other principles, all inert.

KOBERT (1885) announces that Ergot contains three active principles, viz., (1) **Ergotinic Acid**, a glucoside, and the chief constituent of Sclerotinic Acid; having no ecbolic action, but affecting the nervous system, the heart and the respiration;—(2) **Sphacelinic Acid**, non-nitrogenous, unstable, soluble in alcohol, insoluble in water, stimulates the vaso-motor centre, and is believed to be the active agent in contracting the blood-vessels, and producing gangrenous ergotism;—(3) **Cornutine**, an alkaloid, believed to be the agent which contracts the uterus. It produces convulsions and peristaltic contractions of the uterus, and is the active agent in convulsive ergotism.

Tanret's Ergotinine has been proven to have no action on the uterus. The Ergotin of Bonjean, Wiggers and Tanret is not a fixed compound, but a mixture. The Ecboline of Wiggers is also a mixture. Sclerotinic Acid is said by many authorities to act on the uterus, but this is positively denied by many others. It is probably a very uncertain preparation, and is said to be really a mixture of Sphacelinic acid and Cornutine. For the Ergotin of commerce see below. Ergot also contains *Trymethylamine*, to which its odor is due, a fixed oil, (30 per cent.) and tannin.

Preparations.

Extractum Ergotæ Fluidum, *Fluid Extract of Ergot*,—prepared with Acetic Acid and Diluted Alcohol. Dose, ʒss–ij.

Extractum Ergotæ, *Extract of Ergot*, commonly called *Ergotin*,—is prepared by evaporating the fluid extract at a temperature not above 122° F., until reduced to a pilular consistence. Dose, gr. ij–xx.

Vinum Ergotæ, *Wine of Ergot*,—strength 15 per cent. Dose, ʒj–℥j. Is made by an improved method and is more reliable than that formerly official.

Ergotin (Unofficial), is the name of several watery extracts found on the market, and varying much in action both from each other and from the parent drug. That made by Squibb has about the same strength as the official extract, and represents the general powers of Ergot. It may be used hypodermically in doses of gr. ¼–gr. v. The Ergotin of Bonjean is also an aqueous extract, but is very variable in quality and frequently inert. Wiggers' Ergotin is insoluble in the ordinary menstrua, and inert on the vascular apparatus, but causes colic and gastro-enteritis.

PHYSIOLOGICAL ACTION.

ERGOT is an excito-motor and a hemostatic, chiefly affecting the spinal cord, circulation, respiration, intestinal and uterine muscular fibres. Its principal action is the production of an artificial anæmia, and tetanic contraction of unstriped muscular fibre. Its phenomena are divided into two sets, named respectively *Acute* and *Chronic Ergotism*, according as the drug is administered in large doses, or in small quantity for a considerable length of time.

Acute Ergotism. In large doses Ergot acts as a gastro-intestinal irritant, causing nausea and vomiting, gastralgia, colic, thirst, difficult micturition and purging. It slows the heart, raises the arterial tension greatly, dilates the pupils and produces pallor, vertigo and frontal headache. Its action on the circulation is due to its inducing arterial anæmia, but whether this is done by contraction of the arterioles through direct action on their muscular fibres or by central stimulation of the vaso-motor system, or by producing active venous dilatation, thus draining the arterial system, is a much disputed question. It certainly stimulates the contraction of unstriped muscular fibre, especially affecting the sphincters and the uterus, causing continuous labor pains and tonic contraction of the sphincter vesicæ, making micturition difficult if not impossible. It also produces cerebral and spinal anæmia, coldness of the surface, tetanic spasms and violent convulsions, but very large doses (several ounces) are necessary to such results. As much as ℥iij of the fluid extract has been given daily for a week or more, without producing any marked effect.

Chronic Ergotism occurs in two forms, the *Convulsive*, and the *Gangrenous*,—either usually excluding the other. The convulsions are tetanoid spasms of the flexor muscles, the uterus, the intestinal fibres, and the muscles of respiration, ending in coma and death by asphyxia. The gangrenous form begins with coldness and numbness of the limbs, formication of the skin all over the body, loss of sensibility and abolishment of the special senses, bullæ of blood and ichor, followed by dry or moist gangrene of the lower extremities, buttocks and other parts, epileptiform convulsions, coma and death. Autopsies show changes in the posterior columns of the cord, resulting probably from the spinal anæmia.

Experiments with the various derivatives of Ergot show that no one of its constituents represents the power of the drug itself. Those which probably come nearest to it in action are the Ergotinine of Tanret and Sclerotinic Acid.

Analogues of Ergot are Ustilago (see under ZEA), Gossypii Radicis Cortex (Cotton-root Bark), and Caulophyllum (Blue Cohosh). They are each described under their respective titles.

Antagonists and Incompatibles.

Amyl Nitrite, Aconite, Veratrum Viride, Tobacco and Lobelia antagonize its action on the circulation. Caustic alkalies and metallic salts are chemically incompatible.

THERAPEUTICS.

Ergot has a wide field of application. Its most familiar use is to promote uterine contraction in labor, but as the contractions produced by it are continuous instead of the natural intermittent ones, it is highly dangerous when there is any obstacle in front of the child, the probable results being rupture of the uterus, paralysis of the fœtal heart, and severe laceration of the perineum. At the end of the second stage, when the head is born, is the best time for its use (if employed in labor at all), in order to promote firm uterine contraction, thereby guarding against post-partum hemorrhage, and promoting the expulsion of the placenta. The tendency, however, of obstetrical teaching, is against its employment at all in labor; while, in practice, the teaspoonful of Ergot is almost invariably administered as soon as possible after the child is born. In many uterine affections, as chronic metritis, subinvolution, congestive dysmenorrhœa, menorrhagia, fibroids and polypi, Ergot is well employed, producing firm contraction of the womb and promoting absorption of inflammatory products. It is extremely useful in amenorrhœa due to plethora, and in the atonic form of spermatorrhœa. In conjunctivitis, gonorrhœa, and inflammations of mucous membranes generally, it is of striking benefit, if used both locally and internally. It is also an excellent remedy in acute and chronic dysentery, chronic diarrhœa, atonic hemorrhages of arterial type, mania due to cerebral hyperæmia, headache and migraine of congestive form, myelitis, spinal congestion, cerebro-spinal meningitis, splenic enlargement, lax sphincters of the rectum and bladder, and in incontinence of urine from paralysis of the sphincter vesicæ. Hemorrhoids are well treated by its local application, but here it should not be used internally as it promotes venous congestion. In aneurism it aids coagulation by slowing the blood current, and in cardiac hypertrophy without valvular lesion it acts well by slowing the heart. In diabetes insipidus full doses of Ergot are often curative, and it has been used with benefit in diabetes mellitus.

Hypodermically, the aqueous extract dissolved in water and free from alcohol or any other irritating substance, is in many cases much more prompt in action than when given per orem, especially if injected near to the seat of the affection. This is particularly true in post-partum and other hemorrhages, prolapse of the rectum, chronic metritis and subinvolution of the womb, uterine fibroids, varicocele and varicose veins. When so administered it will frequently so contract the sphincter of the bladder as to produce retention of urine, and require the use of the catheter.

ERIGERON, Fleabane (Unofficial),—is the flowering plant *Erigeron canadense*, a weed of the nat. ord. Compositæ, growing in N. America. It contains a Volatile Oil, which is official, also tannic acid and a bitter extractive.

Oleum Erigerontis, *Oil of Fleabane*,—a pale yellow liquid, of sp. gr. about 0.850, becoming darker by age and exposure to air, of peculiar and persistent odor, pungent taste and neutral reaction, readily soluble in alcohol. Dose, ♏x–ʒss.

Oil of Erigeron has the same action as Oil of Turpentine but is less irritant and less efficient. It has considerable reputation as a hemostatic, especially in menorrhagia and intestinal hemorrhage of passive form, as in typhoid fever. It is also used with benefit in diarrhœa and dysentery, and in hemoptysis without fever or other evidence of irritation it is a very valuable remedy.

ERIODICTYON,—the leaves of *Eriodictyon glutinosum*, Yerba Santa, a Californian shrub of the nat. ord. Hydrophyllaceæ. They are from 2 to 4 inches long, shining green as if varnished on the upper surface, white and hairy beneath, of fragrant odor, aromatic taste, and contain an acrid Resin and an aromatic Volatile Oil.

Extractum Eriodictyi Fluidum, *Fluid Extract of Eriodictyon*,—Dose ♏xv–ʒj.

Extractum Eriodictyi, *Extract of Eriodictyon* (Unofficial),—Dose, gr. ij–x.

Eriodictyon is expectorant, and covers the taste of Quinine in a remarkable manner, for which purpose it is combined in mixture with Glycyrrhizin, under the title "*Velatine*," as a proprietary preparation (see *ante*, page 199). It is used with fair success in bronchial and laryngeal affections, also in asthma. Combined in syrup with Grindelia it is very efficient for coughs.

EUCALYPTUS,—the leaves collected from the older parts of the tree, of *Eucalyptus globulus*, or Blue Gum-tree (nat. ord. Myrtaceæ), a native of Australia, now grown in California, Italy, etc. The leaves are 6 to 12 inches long, gray-green, lanceolately scythe-shaped, studded with oil-glands; of camphoraceous odor and bitter, aromatic taste. They contain tannic acid, a resin, a fatty acid and a *Volatile Oil*. The latter consists of three different oils which distil over at different temperatures, the first product being the official substance named *Eucalyptol*, $C_{10}H_{18}O$, which by the action of Phosphoric Acid is converted into *Eucalyptene*, a substance allied to Cymene, and *Eucalyptolen*.

Preparations.

Extractum Eucalypti Fluidum, *Fluid Extract of Eucalyptus*,—is three-fourths alcohol. Dose, ♏x–ʒj.

Oleum Eucalypti, *Oil of Eucalyptus*,—the volatile oil, is distilled from the fresh leaves of various species of Eucalyptus, that from *E. amygdalina* being considered wanting in Eucalyptol. Is soluble, in all proportions, in alcohol, carbon disulphide, or glacial acetic acid. Dose, ♏v–xxx, in emulsion or capsules.

Eucalyptol, $C_{10}H_{18}O$,—is a neutral body obtained from the volatile oil; a colorless liquid, of aromatic, camphoraceous odor, and pungent, cooling taste; soluble in all proportions in alcohol, carbon disulphide and glacial acetic acid. Dose, ♏iij–x.

PHYSIOLOGICAL ACTION.

The taste of Eucalyptus is warm, aromatic, bitter and camphoraceous. It increases the flow of saliva, the gastric juice and the intestinal secretions, and in small doses promotes appetite and digestion, increases the heart's action and lowers arterial tension. In large doses it produces eructations, indigestion, diarrhœa, nausea and vomiting, lowered temperature, great muscular weakness, and if continued will irritate and congest the kidneys, and induce a feverish state with symptoms of cerebral congestion, and great constitutional disturbance. Toxic doses are fatal by paralysis of respiration through direct action on the spinal cord.

It is powerfully antiseptic, and destructive to low forms of life, a stimulating expectorant and an efficient diaphoretic. By some authorities it is believed to reduce the size of an enlarged spleen, and to possess anti-malarial properties by absorbing noxious germs as well as by draining the soil of its water, and by its aseptic emanations purifying the atmosphere in its vicinity. It is largely cultivated in malarial districts for these properties, and is reported to have rendered habitable a portion of the deadly Roman Campagna.

Eucalyptus is eliminated by the skin, bronchial mucous membrane and the kidneys, imparts its odor to the breath and the urine, and is more or less irritant at the points of its elimination.

THERAPEUTICS.

Eucalpytus is an efficient stomachic in atonic dyspepsia, chronic gastric and intestinal catarrh, and in conditions of the intestinal canal which favor the development of worms. In chronic catarrhal conditions of the genito-urinary organs, the broncho-pulmonary mucous membrane, and especially the bladder, it is very useful, acting as a stimulant and disinfectant to the mucous membranes. It is equally beneficial in chronic bronchitis and bronchorrhœa, in cachectic states generally, and in convalescence from acute diseases. In epidemic influenza (grippe) the oil has been used internally with good results, and sprinkled on blotting-paper placed in offices and stores has seemed to act as a prophylactic on persons employed therein. In hysteria, chorea and asthma it is beneficial, in the latter affection being advantageously smoked in cigarettes with Stramonium or Belladonna leaves. In malaria as a reconstructant it is better than Quinine, and it has considerable utility in obstinate intermittents where it is desirable to stop the use of Cinchona preparations. As an antiseptic it is highly valuable in dilute solution for application to ulcers, and as a substitute for Carbolic Acid on gauze in the antiseptic treatment of wounds. It is also used in dilute solution locally, as a stimulating disinfectant in stomatitis, and in the subacute stages of pharyngitis and tonsillitis. An aqueous preparation is highly recommended as a vehicle for alkaloids in solution for hypodermic use, to prevent the development of the penicillium, which rapidly destroys the alkaloid present.

EUONYMUS, Wahoo,—is the bark of *Euonymus atropurpureus*, a shrub of the nat. ord. Celastrineæ, growing in the U. S. Occurs in quills or curved pieces, about $\frac{1}{16}$ inch thick, of ashy-gray color and acrid, sweetish taste. It contains an amorphous, bitter principle named *Euonymin*, also Resins, *Euonic Acid*, and *Asparagin*, fixed oil, etc.

Extractum Euonymi, *Extract of Euonymus*,—Dose, gr. j–v.

Euonymin (Unofficial),—the eclectic preparation, consists of the fixed oil and resin, and is given in doses of gr. ss–v.

Euonymus is classed with Rhubarb, Jalap, Aloes, etc., as a tonic-astringent and resin-bearing purgative. It is said to be also diuretic and expectorant, and a very efficient cholagogue. Its cathartic action is similar to that of Rhubarb, but milder. It has been employed with benefit in some cases of dropsy, also in habitual constipation, torpid liver, and pulmonary affections. In overdoses it will set up considerable gastro-intestinal irritation.

EUPATORIUM, Thorough-wort (*Boneset*),—the leaves and flowering tops of *Eupatorium perfoliatum*, an American plant of the nat. ord. Compositæ, having lanceolate leaves, two united at the base, each 4 to 6 inches long, of weak, aromatic odor and bitter, astringent taste. It contains a neutral, bitter principle, named *Eupatorin*, tannic acid, a volatile oil, etc.

Extractum Eupatorii Fluidum, *Fluid Extract of Eupatorium,*—Dose, ♏x–ʒj.

Eupatorium is a bitter tonic and efficient diaphoretic, also in full doses emetic and aperient. It has been supposed to have antiperiodic and tæniafuge powers. A warm infusion (Boneset tea) is a popular diaphoretic in remittent and typhoid fevers, and at the onset of an attack of acute catarrh or general cold. As a bitter tonic it may be used with advantage in dyspepsia and general debility. Its common name is derived from its supposed power to relieve the bone pains of dengue or the "break-bone fever."

Another variety of Eupatorium, *E. purpureum*, or Gravel-root, is reputed to have decided power over the uric acid diathesis.

EUPHRASIA, Eye-bright (Unofficial),—is a small annual plant of the nat. ord. Strophulariaceæ, growing in Europe and the U. S., odorless, of astringent taste, and containing *Euphrastic Acid*, tannin, etc. It was formerly of great repute in various eye-affections, and may be of utility as a mild astringent in catarrhal conjunctivitis. Its chief value, however, is to abort an attack of acute nasal catarrh with lachrymation, for which purpose a few drops of the tincture every two hours is remarkably efficient. In hay-fever also it is of decided utility in mitigating the catarrhal symptoms, and in the acute coryza of measles it will be found an excellent remedy. A tincture (1 to 9) of the fresh plant should be used, and given in doses of ♏j–v.

FEL BOVIS, Ox-gall (*Fel Tauri*),—the fresh gall or bile of *Bos Taurus*, is a dark-green, viscid liquid, of peculiar odor, bitter taste, and neutral or faintly alkaline reaction. Sp. gr. 1.018 to 1.028. It contains Sodium Glycocholate, Sodium Taurocholate, Cholesterin and coloring matter.

Fel Bovis Purificatum, *Purified Ox-gall,*—3 of Ox-gall and 1 of Alcohol evaporated to pilular consistence, after standing 24 hours, decanting, filtering, etc. Dose, gr. v–xv.

Bile is tonic, antiseptic and purgative. It assists in the emulsification of fats, and stimulates the absorbent powers of the mucous membrane. In the stomach it neutralizes the gastric juice, precipitating the pepsin, and is apt to cause nausea and vomiting. Recently it is found to act well in stimulating the resolution of hypertrophies when locally applied to the part, as the mammæ, tonsils, pannus, etc. It is used as a laxative in constipation when the natural secretion of bile is deficient, but has no advantage over other purgatives.

FERRUM, Iron, Fe,—is metallic Iron in the form of fine, bright, and non-elastic wire.

Ferrum Reductum, *Reduced Iron,*—consists of metallic Iron in fine powder, obtained by reducing the Sesquioxide by hydrogen at a dull red heat. It is a very fine, gray-black, lustreless powder, odorless, tasteless, and insoluble in water and alcohol, but soluble in dilute sulphuric acid with the evolution of nearly odorless hydrogen gas. Dose, gr. j–v, after meals.

Salts of Iron and their Preparations.

Liquor Ferri Acetatis, *Solution of Ferric Acetate,*—is an aqueous solution, containing about 31 per cent. of the anhydrous salt, and corresponding to about 7½ per cent. of metallic iron. A dark, red brown, transparent liquid of acetous odor, sweetish and faintly styptic taste, reaction slightly acid. Dose, ♏ij–x. Used chiefly for pharmaceutical purposes.

Ferri Carbonas Saccharatus, *Saccharated Ferrous Carbonate,*—has at least 15 per cent. of ferrous carbonate. A greenish-gray powder, of sweetish taste at first, changing to ferruginous. Partially soluble in water, but soluble in dilute hydrochloric acid with evolution of CO_2. Action,—slightly stimulant to digestive tract. Dose, gr. ij–x with food.

Massa Ferri Carbonatis, *Mass of Ferrous Carbonate, Vallet's Mass*,—Ferrous Sulphate 100, Sodium Carbonate 100, Honey 38, Sugar 25, Syrup and Distilled Water each, to make 100. Prepared by solution, precipitation and evaporation. Has 42 per cent. of Ferrous Carbonate. An astringent, non-irritant, ferruginous tonic. Dose, gr. j–v, after food.

Pilulæ Ferri Carbonatis, *Pills of Carbonate of Iron, Ferruginous Pills, Chalybeate Pills, Blaud's Pills*,—made by mixing Ferrous Sulphate, about 2½ grains for each pill, with Potassium Carbonate, Sugar, Tragacanth, Althæa, Glycerin and Water. Dose, j–ij pills, after food.

Mistura Ferri Composita, *Compound Iron Mixture, Griffith's Mixture*,—has of Ferrous Sulphate 6, Myrrh 18, Sugar 18, Potassium Carbonate 8, Spirit of Lavender 60, Rosewater to 1000. Is really a solution of the Carbonate formed by reaction between the two principle constituents. Is an excellent chalybeate, but disagreeable to the taste. Dose, ʒij–iv.

Ferri Chloridum, *Ferric Chloride, Perchloride of Iron*, $Fe_2Cl_6+12H_2O$,—orange-yellow, deliquescent, crystalline pieces, of styptic taste and acid reaction, freely soluble in water, alcohol or ether. Action,—strongly astringent, hemostatic. Never used internally.

Liquor Ferri Chloridi, *Solution of Ferric Chloride*,—an aqueous solution of the preceding, containing 37.8 per cent. of the anhydrous salt, with some free HCl acid. Action,—strongly astringent and styptic. Rarely used internally. Dose, ♏ij–x, well diluted.

Tinctura Ferri Chloridi, *Tincture of Ferric Chloride*,—a hydro-alcoholic solution of Ferric Chloride, containing about 13.6 per cent. of the anhydrous salt, corresponding to about 4.7 per cent. of metallic iron. Has of the preceding solution 25 in Alcohol to make 100. A bright, brownish liquid, of ethereal odor, styptic taste and acid reaction. Is used in Mistura Ferri et Ammonii Acetatis. One of the best preparations of Iron. Action,—ferruginous tonic. Dose, ♏v–xx, in water, syrup or glycerin.

Ferri Citras, *Ferric Citrate*, $Fe_2(C_6H_5O_7)_2+6H_2O$,—garnet-red, transparent scales, slowly soluble in water, not in alcohol. Action,—mildly stimulant. Dose, gr. ij–v. Formed by evaporating the following:—

Liquor Ferri Citratis, *Solution of Ferric Citrate*,—an aqueous solution, containing about 35½ per cent. of the anhydrous salt, corresponding to about 7½ per cent. of metallic iron. Solution of Ferric Sulphate 105, Citric Acid 30, Ammonia Water 88, Water to 100. A dark-brown liquid, of slightly ferruginous taste and acid reaction. Dose, ♏v–xv.

Vinum Ferri Citratis, *Wine of Ferric Citrate*,—made from Iron and Ammonium Citrate 4, Tincture of Sweet Orange Peel 15, Syrup 10, White Wine to 100. An Elixir of Iron. Dose, ʒj–ij.

Ferri Hypophosphis, *Ferric Hypophosphite*, $Fe_2(H_2PO_2)_6$,—a white or grayish-white powder, odorless, tasteless, slightly soluble in water, freely so in HCl acid or in a solution of sodium citrate. Action, ferruginous tonic. Dose, gr. v–x.

Ferri Iodidum Saccharatum, *Saccharated Ferrous Iodide*,—a yellowish-white powder, very hygroscopic, odorless, of sweetish, ferruginous taste, and slightly acid reaction, soluble in 7 of water, insoluble in alcohol. Action,—ferruginous tonic. Dose, gr. v–xxv in pill or elixir.

Pilulæ Ferri Iodidi, *Pills of Ferrous Iodide*,—made with Reduced Iron, Iodine, Licorice, Sugar, Acacia and Water, covered with a coating of Balsam of Tolu in Ether. "Blancard's Pills" only differ from these by being covered with a coating of reduced iron to protect the interior from oxidation, but it also protects them from the solvent action of the gastric juice. Dose, 1 or 2 pills ter in die.

Syrupus Ferri Iodidi, *Syrup of Ferrous Iodide*,—is a syrupy liquid containing 10 per cent. of ferrous iodide. A transparent, pale green liquid, of sweet, ferruginous taste and neutral reaction. Action,—ferruginous tonic. Dose, ♏v–xxx.

Ferri Lactas, *Ferrous Lactate*, $Fe(C_3H_5O_3)_2+3H_2O$,—pale, greenish-white, crystalline grains, soluble in 40 of water, freely in solution of an alkali citrate, yielding a green solution, almost insoluble in alcohol. Action that of a feeble ferruginous tonic. Is a constituent of Syrupus Hypophosphitum cum Ferro. Dose, gr. j–iij, in pill or syrup.

Liquor Ferri Nitratis, *Solution of Ferric Nitrate*,—an aqueous solution of $Fe_2(NO_3)_6$, containing about 6.2 per cent. of the anhydrous salt, corresponding to about 1.4 per cent. of metallic iron. A transparent, amber-colored liquid, of acid, styptic taste and acid reaction. Action,—medium as to irritation, astringent and hemostatic. Dose ♏v–xv, well diluted.

Ferri Oxidum Hydratum, *Ferric Hydrate, Ferric Hydroxide, Hydrated Oxide of Iron*, $Fe_2(OH)_6$,—a brown-red magma, wholly soluble in HCl without effervescence. Should be freshly prepared by mixing together Solution of Ferric Sulphate 100, Ammonia Water 110, and Water to 250. The two solutions aforesaid should be kept in separate bottles, on hand, ready for mixing, in quantity of 200 cubic centimeters of the first and 220 of the latter, and when required the precipitate may be washed by pressing in a wet muslin strainer, until no more liquid passes, then diluting as directed. It is the chemical antidote for Arsenic. Dose, ʒj in water, frequently repeated.

Ferri Oxidum Hydratum cum Magnesia, *Ferric Hydrate with Magnesia* (*Arsenic Antidote*),—is a more convenient and more efficient antidote for Arsenic than the preceding, as the excess of the alkaline precipitant is non-irritant, and is itself an Arsenic antidote. The two following solutions should be kept ready: (1) Solution of Ferric Sulphate 50 Cc. in Water 100 Cc. (2) Magnesia, 10 grammes rubbed up with Water 750 Cc. in a bottle of 1000 Cc. capacity. When wanted, shake the latter to a homogeneous magma add it gradually to the former, and shake them together to a uniform, smooth mixture Should be given in large doses (℥j) and frequently repeated.

Emplastrum Ferri, *Iron Plaster, Strengthening Plaster*,—has of Ferric Hydrate dried, 9, Olive Oil 5, Burgundy Pitch 14, Lead Plaster 72.

Trochisci Ferri, *Troches of Iron*,—each troche has of Ferric Hydrate gr. v, with Vanilla, Sugar and Tragacanth. Dose, j–iij troches, thrice daily.

Ferri Phosphas Solubilis, *Soluble Ferric Phosphate*,—bright-green, transparent scales, of acidulous, saline taste, soluble in water, not in alcohol. Used as an adjuvant to laxative pills to prevent the after reactionary constipation. Dose, gr. v–x. Made by reaction between Ferric Citrate and Sodium Phosphate.

Ferri Pyrophosphas Solubilis, *Soluble Ferric Pyrophosphate*,—green, transparent scales, of acidulous taste, soluble in water but not in alcohol. Is almost tasteless and unirritating, and non-constipative. Dose, gr. ij–v. Made by reaction between Ferric Citrate and Sodium Pyrophosphate.

Ferri Sulphas, *Ferrous Sulphate*, $FeSO_4 + 7H_2O$,—large, pale bluish-green prisms efflorescent, of saline, styptic taste, and acid reaction, soluble in 1.8 of water at 59° F. insoluble in alcohol. Is chiefly used to make the Dried Sulphate and other preparations

Ferri Sulphas Exsiccatus, *Dried Ferrous Sulphate*, $2FeSO_4 + 3H_2O$,—a grayish white powder, nearly soluble in water, consisting of the preceding salt, heated gradually to 300° F., until it ceases to lose weight. The most astringent and irritating ferrous salt but an excellent one in small doses. Is a constituent of Pil. Aloes et Ferri. Dose, gr ss–ij in pill.

Ferri Sulphas Granulatus, *Granulated Ferrous Sulphate*, $FeSO_4 + 7H_2O$,—is the same salt as above described, precipitated by Alcohol from solution in dilute sulphuric acid. Dose, gr. ss–ij.

Liquor Ferri Subsulphatis, *Solution of Ferric Subsulphate, Monsel's Solution*,—is an aqueous solution of Basic Ferric Sulphate, containing 43.7 per cent. of the salt. A dark reddish-brown, almost syrupy liquid, of very astringent but not caustic taste, and acid reaction, mixing with water or alcohol in all proportions without decomposition. It but slightly irritating and powerfully astringent, chiefly used locally as an astringent and hemostatic, but may be given internally in doses of ♏iij–x, well diluted.

Liquor Ferri Tersulphatis, *Solution of Ferric Sulphate*,—is an aqueous solution of Normal Ferric Sulphate, $Fe_2(SO_4)_3$, containing 28.7 per cent. of the salt. Has the same properties as described for the preceding, but a less sp. gr. Is used to make other preparations of Iron.

Ferri Valerianas, *Ferric Valerianate*,—a dark, tile-red, amorphous powder, of faint valerianic odor, and mildly styptic taste, insoluble in cold water, decomposed by hot water, readily soluble in alcohol. Of doubtful value as a valerianate. Varies somewhat in chemical composition. Dose, gr. j–iij, in pill.

Compound Iron Salts and their Preparations.

Liquor Ferri et Ammonii Acetatis, *Solution of Iron and Ammonium Acetate* (*Basham's Mixture*),—prepared from Tincture of Ferric Chloride 2, Diluted Acetic Acid 3, Solution of Ammonium Acetate 20, Aromatic Elixir 10, Glycerin 12, Water to 100. An excellent and very pleasant preparation, having some diuretic and diaphoretic powers. Dose, ʒij–v, well diluted.

Ferri et Ammonii Citras, *Iron and Ammonium Citrate*,—prepared from Solution of Ferric Citrate 10, Ammonia Water 4, mixed and evaporated. Transparent, garnet-red scales, deliquescent, readily soluble in water, insoluble in alcohol. Dose, gr. ij–v.

Ferri et Ammonii Sulphas, *Ferric Ammonium Sulphate, Ammonio-ferric Alum*,—pale, violet crystals, efflorescent, of styptic taste and slightly acid reaction, soluble in 3 of water, insoluble in alcohol. Is the least astringent of the sulphates of iron, but more so than any of the salts formed by vegetable acids. Dose, gr. iij–xv.

Ferri et Ammonii Tartras, *Iron and Ammonium Tartrate, Ammonio-ferric Tartrate*,—transparent, reddish-brown scales, slightly deliquescent, of sweetish and slightly ferruginous taste, very soluble in water, insoluble in alcohol. Contains an equivalent of about 25 per cent. of Ferric Oxide, and has but slight irritant qualities. Dose, gr. v-xx.

Ferri et Potassii Tartras, *Potassio-ferric Tartrate*,—transparent, garnet-red scales, slightly deliquescent, of sweetish and slightly ferruginous taste, very soluble in water, insoluble in alcohol. Is the least disagreeable in taste of all the iron preparations, and contains a little more ferric oxide than the preceding salt. Is but slightly astringent and is not constipating. Dose, gr. v–x.

Ferri et Quininæ Citras, *Iron and Quinine Citrate*,—prepared from Ferric Citrate 85, Quinine, dried, 12, Citric Acid 3, Aq. Destil. q. s. ad 100, mixed and evaporated. Thin, transparent, yellowish-brown scales, slowly deliquescent, of bitter taste, slowly soluble in water, slightly soluble in alcohol. Contains 11½ per cent. of dry quinine. Action,—astringent and stimulant to the digestive tract. Dose, gr. iij–v.

Ferri et Quininæ Citras Solubilis, *Soluble Iron and Quinine Citrate*,—Ferric Citrate 85, Quinine, dried, 12, Citric Acid 3, Ammonia Water, Distilled Water, to 100. Thin, transparent scales, of greenish, golden-yellow color, rapidly soluble in cold water, partially soluble in alcohol. Dose, gr. iij–v.

Vinum Ferri Amarum, *Bitter Wine of Iron*,—has of the preceding 5 parts, Tinct. Aurantii Dulcis 15, Syrup 30, White Wine to 100. May replace the various "elixirs of iron and calisaya." Dose, ʒj-iv.

Ferri et Strychninæ Citras, *Iron and Strychnine Citrate*,—Ferri et Ammonii Citras 98, Strychninæ 1, Ac. Citric 1, Aq. Destil. 120, mixed and evaporated. Transparent, garnet-red scales, deliquescent, readily soluble in water, slightly so in alcohol. Contains 1 per cent. of Strychnine. Action,—astringent and stimulating. Dose, gr. j–iij.

Syrupus Ferri, Quininæ et Strychninæ Phosphatum, *Syrup of the Phosphates of Iron, Quinine and Strychnine*. [Described under PHOSPHORUS.]

Syrupus Hypophosphitum cum Ferro, *Syrup of Hypophosphites with Iron*. [Described under PHOSPHORUS.]

Unofficial Preparations of Iron.

Ferri Albuminas, *Iron Albuminate*,—a cinnamon-brown powder, soluble in water acidulated slightly with HCl. Dose, gr. x–xxx, in simple aqueous solution, or in pill.

Ferri Arsenas, *Ferrous Arsenate*, $Fe_3As_2O_8$,—a green, tasteless powder, insoluble in water, soluble in HCl acid. Its activity is due to the arsenic alone. Dose, gr. $\frac{1}{10}$–$\frac{1}{6}$.

Ferrum Dialysatum, *Dialysed Iron*,—composition varies from $Fe_2Cl_6 + 12Fe_2O_3$ to $Fe_2O_3 + 95Fe_2O_3$, and is a 10 per cent. solution of Ferric Oxychloride in water. Prepared by treating a solution of Chloride of Iron with Ammonia, ferric hydrate being precipitated, this being dissolved by agitation is placed in a dialyzer and suspended in water, which is renewed as long as it shows a trace of HCl acid. It is a reddish-brown liquid, free from astringent, styptic taste, but is a very feeble chalybeate, incapable of absorption except by change into a hydrated sesquioxide in the alimentary canal. Is used as a chalybeate, and as an antidote to Arsenic, but is not considered an eligible preparation. Dose, ♏x-xxx.

Syrupus Ferri et Manganesii Iodidi, *Syrup of Iron and Manganese Iodide*,—is a pale, straw-colored liquid, containing a little sulphate of potassium, and in each fluid ℥ has 50 grains of the mixed iodides in the proportion of Iron Iodide 3 parts to 1 of Manganese Iodide. Dose, ♏x–xxx–ʒj.

Syrupus Ferri et Manganesii Phosphatis, *Syrup of Iron and Manganese Phosphate*,—as used by Dr. Simpson, of Edinburgh, contains in each ʒ of syrup 2 grains of Iron Phosphate and 1 grain of Manganese Phosphate. Dose, ʒj.

Mistura Ferri Aromatica, *Aromatic Iron Mixture*,—Pale Bark 4, Calumba 2, Cloves 1, Iron wire 2, Tr. Cardamomi Co. 12, Tr. Aurantii Cort. 2, Aq. Menth. Pip. 50. —Macerate the first 4 in the last one for 3 days, filter, add the tinctures and make up to ℥x. Dose, ℥j–ij.

Mistura Ferri Laxans, *Laxative Iron Mixture,*—Ferri Sulph. gr. ij. Magnesii Sulph. ʒj, Ac. Sulphurici Dil. ♏iij, Spt. Chloroformi ♏xx, Aq. Menth. Pip. ad ℥j. Dose, ℥j.

Mistura Ferro-salina, *Ferro-saline Mixture,*—Magnesii Sulph. ℥j, Potassii Bitart. ʒj, Ferri Sulph. Exsic. gr. x, Aquæ quart j. Dose, a wineglassful.

Notes on the Preparations of Iron.

Oxides and Carbonates, including Ferrum Reductum, Ferri Carbonas Saccharatus, Mistura Ferri Composita, Pil. Ferri Comp., Massa Ferri Carb., Ferri Oxidum Hydratum, Ferri Oxidum Hyd. cum Magnesia, and Mist. Ferri Aromatica,—possess the hæmatinic action of iron with but little astringency, and are therefore selected to restore the blood in anæmia, chlorosis and amenorrhœa, with tendency to dyspepsia and constipation. The *Hydrated Oxides* are only used as antidotes in arsenical poisoning. *Ferrum Reductum* is one of the best forms for internal use, but gives rise to sulphuretted or phosphoretted eructations which are very disagreeable. The *Subcarbonate* is little more than the Red Oxide, but in the Massa Ferri Carb. the oxidation is prevented by the sugar.

Mineral Acid Salts and their preparations comprise the Sulphate in its 3 forms, the solutions of the Subsulphate and Tersulphate, the Phosphate, Pyrophosphate and Hypophosphite, the Chloride and its preparations and the Liquor Ferri Nitratis. They are characterized by their astringent and corrugating action, and are used locally especially as hemostatics, the Solution of the Subsulphate being preferred for topical use, as it is powerfully styptic but not corrosive. The *Tincture of the Chloride* is one of the best preparations for internal use, and is most agreeable in the form of Creuse's tasteless preparation, which is made as follows,—Liq. Ferri Chloridi ℥j, Acidi Citrici 544 grains, Sodii Carb. 1000 grains or q. s., Aquæ Destil. ℥j, Alcoholis q. s. Dissolve the citric acid in the distilled water and heat to the boiling point, gradually adding sodium carbonate until the acid is saturated; mix this with the iron solution and make up to ℥iv with alcohol. Of the *Phosphates* the best is the Pyrophosphate, which is easily assimilated, readily soluble and entirely unirritating.

Vegetable Acid Salts and their preparations comprise the Lactate, the Citrate and its preparations, also the preparations of the Acetate and the Tartrate. They are the least irritating to the stomach but are also the least efficient as chalybeates. They may be administered in white wines, or with alkalies and vegetable acids in effervescing mixtures.

Other Compounds are those in which Iron is combined with bodies equally active, as the preparations of the Iodide, those with Quinine, Strychnine, etc. Generally these preparations are used for a twofold purpose, namely, to relieve anæmia and at the same time act upon the specific ailment on which the anæmia depends.

The *Albuminate* is considered by several authorities to be the most readily assimilated of all the iron preparations.

Physiological Action.

Metallic iron is not inert, for in the stomach it acquires molecular activity through its oxidation, setting hydrogen free. It is a normal constituent of the blood (1 part to 230 of red corpuscles), existing probably as an oxide in combination with hæmatin, which is not formed without it. It is also found in the bile, lymph, chyle, gastric juice, in the pigment of the eye, in the milk and the urine. Given medicinally in small doses it promotes appetite and digestion, and improves the quality of the blood, increasing the number of the red corpuscles. In the stomach all the salts of iron are converted into the Chloride and in the duodenum into an alkaline Albuminate, entering the blood along the whole length of the alimentary canal. Only a small portion of iron is absorbed, the rest being eliminated by the intestinal canal, blackening the fæces by conversion into a sulphide. Of the portion absorbed from the alimentary canal, only a small part reaches the systemic circulation and is eliminated by the kidneys, the greater part being excreted by the liver with the bile.

Iron in large doses, or small ones long-continued is directly unfavorable to digestion, nausea and vomiting being produced by the soluble preparations; the per-salts are actively irritant; the Iodide, Chloride, Nitrate and Sulphate being active poisons, are highly astringent, and act injuriously on the teeth.

Locally most of the iron salts are more or less constringing to the tissues and the mucous membranes, acting as hemostatics and astringents by virtue of their power to coagulate albumen, and acting injuriously on the teeth. The Tincture of the Chloride is considered diuretic.

Incompatibles.

Alkalies and their carbonates, Acids, acidulous salts, and vegetable Astringents are incompatible with most preparations of Iron, the latter group being so by virtue of their Tannic and Gallic Acids which form a deep blue-black precipitate (Tannate of Iron) with the per-salts. The Tincture of the Chloride is decomposed by alkalies, alkaline earths and their carbonates, astringent vegetable infusions, and by mucilage of acacia, which latter produces therewith a brown, semi-transparent jelly.

Therapeutics.

The chief indication for the internal administration of Iron is anæmia, when plethora exists it is contraindicated. It should always be given after meals, and occasionally suspended for a time, to avoid deranging the stomach. When appetite and digestion are promoted by Iron it will do the greatest amount of good, many authorities holding that the principal benefit derived from its use, even in anæmia, is due to its stimulating action upon digestion and the primary assimilation. The Sulphate is here probably the most efficient salt and is well used in combination with aloes when there exists any intestinal torpor, especially as it increases the cathartic power of the latter drug, economizing it, and conferring upon it a permanence of action, which alone it does not possess. In pseudo-leucocythæmia, chorea of anæmic girls at the age of puberty, epilepsy and neuralgia of the anæmic, amenorrhœa and other menstrual disorders of the same class of subjects, and in acute rheumatism of pale, cachectic persons, the chalybeates are generally very efficient remedies, especially the Tincture of the Chloride. The same preparation is extensively employed in erysipelas and diphtheria with good results. In albuminuria with chronic disease of the kidneys the Tincture of the Chloride is a useful chalybeate diuretic. In many cardiac diseases of the anæmic, fatty heart, weak heart, dilatation, mitral disease, etc., ferruginous preparations are often of signal advantage. In the syphilitic cachexia, chancroid, and sloughing phagedena, the Iodide gives good results, particularly when the subject is one of debilitated constitution. In the nocturnal incontinence of children the Syrup of the Iodide is one of the most efficient remedies. In all chronic affections of the respiratory organs, when hemorrhage is not existing or threatened, the Iron, Quinine and Strychnine Phosphate is used with much benefit. In passive hemorrhages, especially when due to anæmia, the Tincture of the Chloride is very effective, and in all active bleeding the Solution of the Subsulphate locally used is a prompt and efficient hemostatic. A weak solution of this preparation (ʒj ad ℥viij), used in the form of spray, is the most serviceable astringent in obstinate epistaxis, and in hematemesis the same solution may be swallowed in small quantities at short intervals. In chronic diarrhœa and dysentery the Solution of the Nitrate is an efficient astringent, and a weak solution of the Chloride is used as a rectal injection against thread-worms.

In arsenical poisoning the most effective antidote is the Hydrated Oxide, which forms with Arsenous Acid an almost insoluble compound. The solutions used in its preparation should be kept on hand and only mixed when wanted for use.

FICUS, Fig,—is the fleshy receptacle of *Ficus Carica*, bearing fruit upon its inner surface. The fig-tree is a member of the nat. ord. Urticaceæ and a native of the shores of the Levant, but is cultivated in Southern Europe and in other warm countries. Figs contain about 62 per cent. of grape sugar, also gum, fat, etc., and are a constituent of the official Confectio Sennæ.

Figs are demulcent, laxative and nutritious. They are used in their fresh state as an aliment, but if eaten in quantity may produce flatulence, enteralgia and diarrhœa. They are chiefly used as an article of diet in habitual constipation, but may be employed as an ingredient of demulcent decoctions, and locally as a poultice to gum-boils.

FŒNICULUM, Fennel,—is the fruit of *Fœniculum capillaceum*, a European cultivated plant of the nat. ord. Umbelliferæ. It is 1/6 to 1/3 of an inch long, oblong, slightly curved, separable into 2 mericarps, and having 5 ribs, and several oil-tubes, odor and taste aromatic. It contains a volatile oil, united with a terpene, and is a constituent of Pulvis Glycyrrhizæ Compositus.

Oleum Fœniculi, *Oil of Fennel*,—the volatile oil, a light-yellow colored liquid, having the odor of fennel, a warm taste and neutral reaction, soluble in alcohol. It is an ingredient of Spiritus Juniperi Compositus. Dose, ♏ij–v.

Aqua Fœniculi, *Fennel Water*,—contains 2 parts of the oil in 1000 of distilled water. Dose, ʒss–℥j.

Fennel is an aromatic stomachic and a mild stimulant. It is chiefly used as an agreeable carminative in flatulence and colic, and as a corrigent to Senna, Rhubarb, and other disagreeable medicines. An infusion is often used as an enema to expel flatus in infants.

FRANGULA, Buckthorn,—the bark, collected at least one year before being used, of *Rhamnus Frangula*, or Alder Buckthorn, a European shrub of the nat. ord. Rhamneæ. Occurs in quilled pieces $\frac{1}{25}$ inch thick, outer surface of gray-brown color, with numerous small warts. It contains several principles, of which the only important one is *Frangulin*, or *Ramnoxanthin*, a lemon-yellow, odorless and tasteless glucoside, insoluble in water and but sparingly so in alcohol or ether, and thought to be identical with Cathartin, the active principle of Senna. Another species of the genus Rhamnus is described under the title RHAMNUS PURSHIANA.

Extractum Frangulæ Fluidum, *Fluid Extract of Frangula*.—Dose, ʒss–ij.

Frangula-bark when fresh is a violent irritant to the gastro-intestinal tract, producing vomiting, purging, and much pain. The old dried bark is a safe purgative without irritant qualities, and is much used in the constipation of pregnancy, and other conditions requiring purgation. The fluid extract is the best form for administration.

FUCHSIN, Roseïne, *Magenta, Anilin Red* (Unofficial),—is the Hydrochlorate of Rosanilin, $C_{20}H_{10}N_3+HCl$, occurring in brilliant, elongated crystals having a green lustre, readily soluble in water and therewith making a bright red solution. Given internally it has produced salivation, vomiting, and diarrhœa; and when injected intravenously it has caused trembling, staggering, albuminuria and fatty degeneration of the kidneys, symptoms which are thought to be possibly due to the presence of Arsenic or Anilin as impurities. It imparts a magenta color to the urine, and is excreted by the kidneys, liver and salivary glands. It has been found to be very efficient in reducing albuminuria, in many instances having entirely arrested it. It is best administered in pill with a vegetable extract as Liquorice or Gentian, and in doses of gr. ½–iv, according to age.

FUCUS VESICULOSUS, Bladder-wrack, *Sea-wrack* (Unofficial),—is a perennial plant of the nat. ord. Algæ, growing on the shores of the Atlantic and Pacific Oceans as a sea-weed. It has a flat leaf, with a midrib throughout its length, and small spherical vesicles, filled with air, in the leaf. It contains mucilage and much Soda in saline combination, also Iodine, but less of the latter than other algæ growing in deeper water. A decoction of the fresh plant is the best form for administration.

Fucus Vesiculosus is one of a number of marine plants which are used in various parts of the world as food for man and cattle and as manure. The species under consideration is considered alterative and tonic, and has been employed in goitre, glandular and joint enlargements and psoriasis, but especially to produce absorption of adipose tissue in the obese. An extract is sold under the title "Anti-fat."

GALBANUM (Unofficial),—is a gum-resin obtained from *Ferula galbaniflua*, an Asiatic plant of the nat. ord. Umbelliferæ, and probably from other allied plants. It occurs in minute tears, agglutinated into a hard mass, of balsamic odor and acrid, bitter taste. It contains a *Volatile Oil* isomeric with Turpentine, a Gum, and a mixture of Resins which yield by dry distillation a blue oil and *Umbelliferon*, a tasteless substance in satiny crystals. Dose, gr. x–xx, in pill or emulsion.

Galbanum is stimulant, expectorant and antispasmodic, acting much like Ammonia and Asafetida, and usually given with either of these substances. It is used in chronic bronchitis and catarrh of mucous membranes generally, in amenorrhœa and chronic rheumatism.

GALLA, Nutgall,—is an excrescence on *Quercus lusitanica*, the Dyer's Oak, a shrub of the nat. ord. Cupuliferæ, growing in Western Asia, and is caused by the puncture and deposited ova of the insect *Cynips Gallæ tinctoriæ*. Galls are hard, globular bodies, from ½ to ¾ inch in diameter, of blackish-gray color, tuberculated on the surface, having a central cavity, and an intensely astringent taste. They contain from 15 to 75 per cent. of *Tannic Acid*, about 5 per cent. of *Gallic Acid*, and other unimportant constituents. Dose, gr. v–xv.

Tinctura Gallæ, *Tincture of Nutgall*,—strength 20 per cent. Dose, ʒ ss–iij.
Unguentum Gallæ, *Nutgall Ointment*,—strength 10 per cent.

The action of Nutgalls is powerfully astringent, due to the Tannic and Gallic Acids contained in them. Having no special action or use of their own, their qualities may be learned by consulting the articles ACIDUM TANNICUM and ACIDUM GALLICUM, *ante*, pages 71 and 81.

GAULTHERIA, Wintergreen (Unofficial),—is the leaf of *Gaultheria procumbens*, an American evergreen plant of the nat. ord. Ericaceæ, having a peculiar flavor, a fragrant odor, and an aromatic and astringent taste. Its active principle is the *Volatile Oil*, which is official. It also contains Tannic Acid, Arbutin, Urson, Ericolin, etc.

Oleum Gaultheriæ, *Oil of Wintergreen*,—is the volatile oil, a liquid of peculiar and aromatic odor, sweetish, warm taste, and a slightly acid reaction. It is readily soluble in alcohol, and consists of *Methyl Salicylate* 90 per cent., and *Gaultherilene*, a hydrocarbon, 10 per cent. Dose, ♏ iij–x. It is nearly identical with the Volatile Oil of Betula.
Spiritus Gaultheriæ, *Spirit of Gaultheria*,—has of the oil 5 per cent., dissolved in 95 of alcohol. Used for flavoring. Dose, ʒ ss–ij.

Gaultheriæ is stimulant and slightly astringent. Its chief value is as one of the sources of the oil named after it, which is also found in the sweet birch and many other plants, and, containing so large a proportion of Methyl Salicylate or Methylsalicylic Acid, is powerfully antiseptic and antipyretic. In large doses it is irritant to the stomach, in one case ℥j having caused death by violent gastritis.
Oil of Gaultheria is used successfully as a substitute for Salicylic Acid in many conditions, especially in rheumatic and gouty disorders. The plant has been used as an emmenagogue and a galactagogue, but its principal employment is in the form of the spirit as an agreeable flavoring agent.

GELSEMIUM, Gelsemium, *Yellow Jasmine*,—is the rhizome and roots of *Gelsemium sempervirens*, a climbing plant of the nat. ord. Loganiaceæ, with showy yellow flowers, which grows in the forests of the southern U. S., forming festoons from one tree to another. The rhizome is cylindrical, long, about an inch thick, of a light yellowish-brown color, an aromatic, heavy odor and a bitter taste. It contains a volatile oil, a resin and an alkaloid, *Gelsemine*, in combination with *Gelsemic Acid*. Dose, gr. ij–xx.

Preparations.

Extractum Gelsemii Fluidum, *Fluid Extract of Gelsemium*,—alcoholic. Dose, ♏ ij–xx.
Tinctura Gelsemii, *Tincture of Gelsemium*,—strength 15 per cent. Dose, ♏ x–ʒ j.
Gelsemina, *Gelsemine*, $C_{11}H_{19}NO_2$ (Unofficial),—an amorphous, colorless, inodorous, nearly insoluble solid, of intensely bitter taste, and strong basic properties, neutralizing the strongest acids, and with them forming soluble salts. Dose, gr. $\frac{1}{60}$–$\frac{1}{20}$.

PHYSIOLOGICAL ACTION.

Gelsemium is a powerful motor-depressant, causing paralysis of motility and depression of sensibility by central action on the spinal cord. It is also antispasmodic and diaphoretic. In moderate doses it produces languor, slowing of the cardiac rate, enfeebled muscular action, impaired sensibility, drooped eyelids and dilated pupils, with some diaphoresis. In toxic dose, as a teaspoonful of the fluid extract, it produces vertigo, diplopia, drooped eyelids and dilated pupils (paralysis of 3d nerve), labored respiration, slow and feeble heart, dropped jaw, staggering gait, extreme muscular weakness and almost complete anæsthesia, profuse diaphoresis, loss of articulation, and death by asphyxia from paralysis of the muscles of respiration, consciousness being preserved until CO_2 narcosis sets in. Convulsions, with backward movements, occur in animals but not in man. Motion is affected before sensibility in warm-blooded animals, sensibility before motion in frogs.

Gelsemium is not an arterial depressant, although it lowers the heart-rate, and is not irritant to the gastro-intestinal tract, but it produces a decided lowering of the body temperature. The effects of a moderate dose pass off in about three hours.

Antagonists and Incompatibles.

Morphine is the most complete antagonist, so are also Digitalis, Ammonia, Alcohol, and to some extent the tincture of Xanthoxylum fraxineum. Emetics, heat, faradization of the respiratory muscles and artificial respiration are measures of prime importance. The caustic Alkalies and Tannic Acid are chemically incompatible.

THERAPEUTICS.

Gelsemium is indicated in all conditions of exalted nerve function, and contraindicated whenever there is a weak heart. It is best used in cerebro-spinal meningitis, mania with great motor excitement and persistent insomnia, delirium tremens, many forms of sleeplessness, pneumonia and pleurisy if the heart be strong, coughs of convulsive and spasmodic character, neuralgia of the fifth nerve, remittent fever, after-pains, ovarian neuralgia, dysmenorrhœa, irritable bladder of women, and incontinence of urine from spasm of the vesical muscular fibres. In most of these affections the remedy must be pushed to the inducing of some physiological symptoms, but its action should not be carried beyond the production of drooped eyelids, diplopia and muscular debility. It has also been used with varying success in intercostal neuralgia, myalgia, sciatica, spasmodic asthma, sick headache, eczema, pruritus and tetanus. Its especial field, however, is in remittent and typho-malarial fevers and cerebro-spinal meningitis. It is not suitable to low fevers and has not sufficient power as a cardiac depressant to be of much use in sthenic forms.

There is much evidence for the claim made for the drug Gelsemine, of singular efficiency in antagonizing the mental condition occasionally manifested by an unusual degree of dread, in regard to some approaching ordeal, or ordinary trial of life; as, for example, that of a woman concerning her impending confinement, or of a student in reference to his examinations. In very many such cases, the use of Gelsemine, in small doses frequently repeated (gr. $\frac{1}{100}$ ter die), has seemed to remove the state of abnormal fear entirely.

GENTIANA, Gentian,—is the root of *Gentiana lutea*, the Yellow Gentian, one of a numerous family of plants (nat. ord. Gentianeæ), inhabiting the mountainous districts of Europe. An American species, *G. Catesbœi*, Blue Gentian, is considered nearly equal in value to the official species. Gentian occurs in cylindrical pieces or longitudinal slices of the root, which is ½ to 1 inch thick and several inches long, brown externally, yellowish-brown within, of faint, peculiar odor, and taste at first sweetish, afterwards persistently bitter. It contains an active, bitter glucoside, *Gentopicrin* or *Gentianin*, $C_{20}H_{30}O_{12}$, which is crystalline and soluble in water, also an inert, amorphous body, *Gentianic* or *Gentesic Acid*, gum, considerable sugar, and a trace of volatile oil, but no tannin.

Preparations.

Extractum Gentianæ, *Extract of Gentian*,—aqueous. Dose, gr. j–v.

Extractum Gentianæ Fluidum, *Fluid Extract of Gentian*,—Dose, ʒss–j.

Tinctura Gentianæ Composita, *Compound Tincture of Gentian*,—Gentian 10, Bitter Orange Peel 4, Cardamon 1, Alcohol and Water to 100. Dose, ʒss–ij.

Unofficial Preparations.

Infusum Gentianæ Compositum, *Compound Infusion of Gentian*,—contains Gentian 10, Bitter Orange Peel 2½, Coriander 2½, Alcohol 40, Water to 320. Dose, ʒj–℥j.

Mistura Gentianæ Alkalina, *Alkaline Mixture of Gentian*,—Ac. Hydrocyan. Dil. ♏iij, Sodii Bicarb. gr. xv, Infusum Gentianæ Co. to ℥j. One dose.

Mistura Gentianæ et Sennæ, *Mixture of Gentian and Senna*,—Infusum Sennæ ʒiij, Tr. Cardamomi Co. ʒj, Infusum Gentianæ Co. ʒvj. One dose.

Physiological Action and Therapeutics.

Gentian is a simple bitter without astringency or aroma, its action corresponding to that of Calumba (see *ante*, page 163), but it is more apt to disagree with the stomach. In addition, like Cornus, a member of the same class, it has considerable repute as an antiperiodic and febrifuge. Gentian has been considered a valuable tonic throughout all Europe from the earliest historical times. It is highly esteemed as a stomachic tonic in dyspepsia connected with a gouty diathesis, in hysteria, jaundice, and convalescence from acute diseases and from malarial fever. The compound tincture is an excellent vehicle for cod-liver oil, and the now unofficial infusion is a good vehicle for the administration of chalybeates, mineral acids and neutral salts. The discoloration which iron salts make with gentian preparations is probably due to Gentesic Acid and not to tannin, as it contains none of the latter.

GERANIUM, Cranesbill,—is the rhizome of the indigenous perennial *Geranium maculatum* (nat. ord. Geraniaceæ). It is 2 or 3 inches long, horizontal, contorted and tuberculated, with thin, fragile rootlets, inodorous, taste astringent. Its active constituents are tannic and gallic acids.

Extractum Geranii Fluidum, *Fluid Extract of Geranium.*—Dose, ♏v–ʒj.

Geranium is an efficient astringent, and its action corresponds with that of Tannic Acid (see *ante*, page 81). Having no unpleasant taste it is a useful agent for infants and others having delicate stomachs, and is a very popular domestic remedy in many parts of the country. It is especially used in diarrhœas, dysentery, cholera infantum, hemorrhages, relaxed conditions of mucous membranes, gleet and leucorrhœa.

GLYCERINUM, Glycerin,—is a liquid obtained by the decomposition of vegetable or animal fats or fixed oils, containing not less than 95 per cent. of absolute Glycerin, $C_3H_5(HO)_3$, which exists in fats and fixed oils in combination with the fatty acids.

Glycerin is a clear and colorless liquid, of syrupy consistence, hygroscopic, non-drying, odorless, of warm and very sweet taste, neutral reaction, sp. gr. 1.250, soluble in water and alcohol, but insoluble in ether, chloroform and fixed oils. It dissolves Tannin, Gallic Acid, Carbolic Acid, Salicylic Acid, Bromine, Iodine, etc., and with the aid of heat metallic salts and oxides, alkaloids, etc. With strong Nitric Acid it forms Nitro-glycerin, and it reduces Potassium Permanganate, Chromic Acid and Chlorinated Lime with great violence. An impurity frequently present in it is *Acrolein*, formed by the use of too high a heat in its manufacture, and which is very acrid and poisonous. Glycerin is a constituent of the 6 Glycerites, Pilulæ Phosphori, Mucilago Tragacanthæ, Massa Hydrargyri, and several extracts and fluid extracts. Dose, ʒj–ij, diluted.

Preparations.

Suppositoria Glycerini, *Suppositories of Glycerin,*—each has Sodium Carbonate, grains 4½, Stearic Acid, grains 7½, dissolved by heat in 90 grains of Glycerin, cooled in a mould, and wrapped in tin-foil. Used per rectum in chronic constipation.

Glycerites of Carbolic Acid, Tannic Acid, Starch, Boroglycerin, Hydrastis, Yolk of Egg,—are described under the titles of their respective ingredients.

PHYSIOLOGICAL ACTION.

Glycerin is highly antiseptic, abstracts water from tissues with which it comes in contact, and unless pure is often very irritating to the skin. It is freely absorbed by all surfaces, cutaneous and mucous, and is decomposed in the system, passing out as formic and other acids. On the stomach it has no particular action, but in large quantities it is laxative and is said to cause the solution of the red blood corpuscles and hæmoglobinuria. The urine of persons using glycerin contains a body which acts like sugar in the copper and fermentation tests, but is not sugar. Glycerin is a good emollient and is considered nutritive by many authorities.

THERAPEUTICS.

Glycerin has been used as a substitute for Cod-liver Oil in wasting diseases, but with little benefit. It has also been tried as a remedy in diabetes, but with unsatisfactory results so far as reported, except as a sweetening substitute for sugar in the dietary of those afflicted with that disease. It is said to be fatal to intestinal trichinæ, and to be an efficient internal remedy in acne and flatulence. In chronic constipation, most excellent results are obtained from rectal enemata of Glycerin, or from the official suppositories thereof. As a vehicle it is used for many drugs, and is a good ingredient of solutions for hypodermic use, promoting the solubility of many alkaloids and acting as an antiseptic. It is also employed to preserve and aid the action of the digestive ferments, Pepsin and Pancreatin, as well as to prevent the decomposition of vaccine lymph.

Locally it is valuable in many cutaneous affections as an emollient and softening agent. In acute coryza it gives great relief if applied by a brush or as a spray to the nasal mucous membrane. It is used on cotton to the cervix uteri as a depleting agent, and mixed with an infusion of flaxseed as an enema to relieve tenesmus in acute dysentery. With tincture of Benzoin it is an excellent application to chapped hands or lips and fissured nipples. In the external auditory canal it is usefully employed to soften cerumen, diminish the secretion of pus, deplete the tissues, and keep the surface moist.

Glycozone (Unofficial),—is claimed to be a stable compound resulting from the reaction between chemically pure glycerin and 15 times its volume of ozone; and not a mixture of hydrogen dioxide with glycerin. It is very hydroscopic, and must be kept tightly corked, to prevent deterioration. It is said to act upon diseased tissue in the same manner as Hydrogen Dioxide (which see), but more slowly; and may be used in full strength as an application to wounds and suppurating surfaces, to stimulate healthy granulations, and generally as an antiseptic surgical dressing. It is mixed with water (1 to 10) as a rectal injection; and may be administered internally, in doses of ʒj-ij in a wineglassful of water, in gastric affections,—as dyspepsia, pyrosis, ulcer and catarrh of the stomach.

GLYCYRRHIZA, Glycyrrhiza, *Liquorice Root,*—is the root of *Glycyrrhiza glabra*, var. *glandulifera*, a plant of the nat. order Leguminosæ, native in southern Europe and Asia, but largely cultivated in many other parts. It occurs in long pieces, $\frac{1}{5}$ to 1 inch thick, longitudinally wrinkled, of a grayish-brown color externally, tawny-yellow internally, pliable and tough, and of a somewhat acrid, sweet taste. It contains a yellow, amorphous glucoside, *Glycyrrhizin*, $C_{24}H_{36}O_9$, also *Glycyrrhizic Acid*, *Asparagin*, sugar, resin, gum, etc. Glycyrrhizin when boiled with dilute acids yield glucose and a very bitter substance named *Glycyrretin*.

Preparations.

Extractum Glycyrrhizæ, *Extract of Glycyrrhiza*,—is the commercial extract of the root, occurring in glossy-black rolls, of sweet, peculiar taste. Not less than 60 per cent. of it should be soluble in cold water.

Extractum Glycyrrhizæ Purum, *Pure Extract of Glycyrrhiza*,—made with Aqua Ammonia and Water, by percolation and evaporation to a pilular consistence. Dose, indefinite.

Extractum Glycyrrhizæ Fluidum, *Fluid Extract of Glycyrrhiza,*—made with Aqua Ammonia and diluted Alcohol. Dose, indefinite.

Mistura Glycyrrhizæ Composita, *Compound Mixture of Glycyrrhiza.—Brown Mixture,*—has of the Pure Extract 3 parts, Syrup 5, Acacia 3, Tr. Opii Camph. 12, Vinum Antimonii 6, Spt. Ætheris Nitrosi 3, and Water to 100. Dose, ʒj–℥j.

Pulvis Glycyrrhizæ Compositus, *Compound Powder of Glycyrrhiza,*—Senna 18, Glycyrrhiza 23½, Oil of Fennel 4, Washed Sulphur 8, Sugar 50 parts. Dose, a teaspoonful.

Trochisci Glycyrrhizæ et Opii, *Troches of Glycyrrhiza and Opium.*—each has of Extract of Glycyrrhiza gr, ij, Powdered Opium gr. $\frac{1}{18}$, Acacia, Sugar and Oil of Anise. Dose, j–ij every hour.

Glycyrrhizinum Ammoniatum, *Ammoniated Glycyrrhizin,*—the sweet principle of Liquorice rendered soluble and therefore tasteable by Ammonia, believed to be the form in which Glycyrrhizin exists in the root. Occurs in brownish-red scales, very sweet, and soluble in water or in alcohol. Dose, gr. v–xv. Is a constituent of *Velatine*, for which see page 199.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Liquorice is demulcent and mildly laxative. It has an agreeable taste, and increases the flow of saliva and mucus when slowly chewed or sucked, the increased secretions acting as emollients to the throat. It is used in many pharmaceutical preparations, covering the taste of Senna, Senega, Hyoscyamus, Turpentine, Ammonium Chloride, the bitter Sulphates, and to some degree the bitterness of Quinine. The powdered extract or root is used as an excipient in pills and troches. The Compound Mixture is an efficient expectorant, much employed in acute bronchitis and catarrhal laryngitis, but owing its power over cough mainly to the Opium contained in it. The Compound Powder is a gentle laxative, of which Senna is the most active ingredient. The Troches are used for cough, but must be carefully prescribed to children, as each troche contains gr. $\frac{1}{18}$ of Powdered Opium.

GOSSYPIUM, Cotton,—is the hairs of the seed of *Gossypium herbaceum*, and of other species of *Gossypium* (nat. ord. Malvaceæ), freed from adhering impurities and deprived of fatty matter. In this form it is official as **Gossypium Purificatum,** *Purified Cotton, Absorbent Cotton,* insoluble in ordinary solvents, but soluble in copper ammonium sulphate solution. Cotton-fibre is familiar in appearance to every one, but when examined microscopically, it shows as flattened, hollow and twisted bands, spirally striate, and slightly thickened at the edges. It is a modification of Cellulose, $C_{12}H_{10}O_{10}$, and corresponds therewith in all its ordinary chemical properties.

Preparations of the Cotton Plant.

Gossypii Radicis Cortex, *Cotton Root Bark,*—thin bands or quilled pieces, brownish-yellow exteriorly, white interiorly, of slightly acrid and astringent taste. Dose, gr. xxx–ʒj.

Extractum Gossypii Radicis Fluidum, *Fluid Extract of Cotton Root Bark,*—made with Glycerin and Alcohol, by maceration and percolation. Dose, ♏xxx–ʒj.

Oleum Gossypii Seminis, *Cotton-seed Oil*,—the fixed oil expressed from the seeds and purified. Is yellow, odorless, of bland taste and neutral reaction, soluble in ether, but slightly soluble in alcohol. Is introduced into the pharmacopœia for the reason that it constitutes most of the "Olive Oil" sold in foreign-shaped bottles and under foreign-appearing labels. It is directed to be used in the official Liniments of Ammonia and Camphor.

Pyroxylinum, *Pyroxylin*, *Soluble Gun-cotton*, *Colloxylin*,—is official for the purpose of making Collodium. It is prepared by macerating Cotton in a mixture of Sulphuric and Nitric Acids, washing, draining and drying.

Collodium, *Collodion*,—made by dissolving Pyroxylin 3, in Ether 75 and Alcohol 25.

Collodium Flexile, *Flexible Collodion*, Collodion 92, Canada Turpentine 5, Castor Oil 3, mixed thoroughly.

Collodium Stypticum, *Styptic Collodion*,—Ether 25, Alcohol 5, Tannic Acid 20, Collodion to 100.

Collodium Cantharidatum, *Cantharidal Collodion*, *Blistering Collodion*,—Cantharides 60, Flexible Collodion 85, Chloroform q. s. to 100.

Physiological Action.

Cotton-root is believed to be an efficient emmenagogue and oxytocic by Southern practitioners, also somewhat of a galactagogue, but experiments on pregnant animals have not confirmed this view of its action. The Oil of the seed is very bland and may be applied to all the purposes for which Olive Oil is used. Cotton itself, when freed from oily matter, is remarkably absorbent of water, and is a good agent for excluding air from injured surfaces. Pyroxylin is highly inflammable, and explosive at 300° F. Collodion is also inflammable, and rapidly dries on exposure to the atmosphere by evaporation of its ether, leaving a transparent film of Pyroxylin on the surface to which it has been applied; which film, if the flexible collodion be used, does not contract on drying or readily crack, making it an excellent protective application. Styptic Collodion is a solution of Tannin, and is an excellent hemostatic. Cantharidal Collodion is a convenient blistering agent, suitable for cases where the patient is inclined to remove a blister if applied in the ordinary way.

Therapeutics.

Absorbent Cotton is a valuable agent in surgical practice, being employed as an application in burns and scalds, erysipelas, articular rheumatism, etc., to exclude the atmosphere, allay pain, and when covered with oiled silk or rubber cloth to keep up local perspiration. It may be carbolated, borated or salicylated, by soaking in the respective solutions, and then used as an antiseptic dressing for wounds, ulcers, etc. It is employed by the pharmacist in funnels to filter oils, and for the preparation of the official waters.

Cotton-root Bark is much employed by the negroes of the Southern States in decoction as a supposed abortifacient, oxytocic and emmenagogue. It is used in the south for intensifying uterine action in normal labor, in dysmenorrhœa and amenorrhœa. A decoction, of ℥iv in a quart of water boiled to a pint, is the favorite preparation, administered in wineglassful doses.

COLLODION is used as a protective covering for superficial burns, ulcers and wounds, slight cuts, cracked nipples, anal fissures, and erysipelas. For these affections the flexible collodion should be used, but where it is desirable to produce pressure on the part the ordinary form is best, as it contracts in drying with considerable force. This property makes it highly useful in drawing the edges of wounds together, bringing pressure on buboes, incipient boils, carbuncles, etc.

STYPTIC COLLODION has many uses as a hemostatic and protective which will suggest themselves, and the Cantharidal form is a convenient epispastic for uneven surfaces, the therapeutics of which are detailed under CANTHARIS.

GRANATUM, Pomegranate,—is the bark of the stem and root of *Punica Granatum*, a small tree of the nat. ord. Lithrarieæ, cultivated in subtropical countries. It occurs in thin quills of yellowish-gray color, warty or ridged on the external surface, inodorous, of astringent and slightly bitter taste. It contains Tannic and Punico-tannic Acids, Mannite and an active liquid alkaloid *Pelletierine*, $C_8H_{15}NO$, which is soluble in water, alcohol, ether, chloroform, etc., and has strong basic properties. There are no official preparations.

Unofficial Preparations.

Extractum Granati Fluidum, *Fluid Extract of Pomegranate.*—Dose, ʒ ss–jss.

Decoctum Granati, *Decoction of Pomegranate,*—ʒ xvij of bark from the fresh root in ℥ xvij of boiling water, boiled down to ℥ xij and strained. Dose, ℥ iv–vj every hour, preceded and followed in a few hours by a brisk cathartic. The decoction of the Br. Phar. is of 1 to 8 strength and is given in doses of ℥ ij–iv.

Pelletierinæ Tannas, *Pelletierine Tannate.*—Dose, gr. v–xx, taken fasting and followed in 15 minutes by a sharp purgative.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Granatum and its alkaloid are tæniafuge, and very efficiently so, rarely failing to bring away the whole worm. The decoction is usually employed, but lately Pelletierine has been coming into fashion, a proprietary form being sold as "Tanret's Pelletierine" in bottles containing one adult dose at three dollars each. The decoction, in full doses, causes nausea and vomiting, flatulence, purging, and sometimes cramps in the legs, giddiness, dimness of vision, general numbness of the limbs and increase of the quantity of urine.

For the expulsion of tape-worm a mixed treatment by Pomegranate-root bark, Pumpkin seeds and Oleoresin of Male-fern is preferred by many practitioners. The following formula has proved very efficient. ℞. Granati ℥ ij, Aquæ Ojss, boiled to ℥ vij; Peponis ℥ j, deprived of outer coats and beaten to a paste with fine powdered sugar; Oleoresinæ Aspidii, gr. xxx, made into emulsion with Acacia and the above decoction of Granatum, then added to the paste of Pepo, and flavored with Syrups up to ℥ ix. One-third of this to be taken in the morning after a light diet and a laxative on the previous day. If not successful the second and third portions may be taken at intervals of 3 hours. The worm should be passed sitting in a tepid sitz-bath, to prevent the expelled portion tearing off the head by its weight.

GRINDELIA,—the leaves and flowering tops of *Grindelia robusta,* and of *Grindelia squarrosa,* herbaceous Californian plants of the nat. ord. Compositæ, having a branched stem, lower leaves spatulate and tapering at the base, upper leaves oblong, pointed and have broad bases, flowers yellow, odor balsamic, taste pungently aromatic and bitter. It contains a resin, a volatile oil, and an alkaloid with basic properties.

Extractum Grindeliæ Fluidum, *Fluid Extract of Grindelia.*—Dose, ♏x–ʒj.

Grindelia is antispasmodic and a motor-depressant, inducing paralysis in small animals beginning in the hind extremities. It slightly slows the heart and respiration, and produces mydriasis and hypnotic effects if given in sufficient quantity, with reduced cutaneous sensibility and sluggish reflexes. It has a pungent taste, creates a sense of warmth in the stomach, and in small doses promotes appetite and digestion. It is eliminated by the pulmonary mucous membrane and the kidneys, and is markedly diuretic.

Grindelia has been used chiefly in spasmodic asthma, bronchitis and whooping-cough, which it greatly relieves. It is a useful remedy in spasmodic coughs, dyspnœa of various pulmonary and cardiac affections, hay-fever, and chronic cystitis. Locally it is highly efficient as a sedative lotion (1 part of the fluid extract to 9 of water) in poisoning by Rhus toxicodendron, and in skin diseases attended with itching and burning sensations.

GUAIACUM, Lignum Vitæ,—is official in two forms, GUAIACI LIGNUM, the heart-wood of *Guaiacum officinale* and of *Guaiacum sanctum,* and GUAIACI RESINA, *Guaiac,* the resin of the wood of *Guaiacum officinale,* a large West Indian tree of the nat. ord. Zygophylleæ. The Resin is the important constituent, and itself consists of three resins, namely, *Guaiaconic Acid,* $C_{19}H_{20}O_5$, 70 per cent., *Guaiac Acid,* $C_6H_8O_3$, resembling Benzoic Acid, and *Guaiarec Acid,* $C_{20}H_{26}O_4$; also an indifferent resin. The wood also contains a yellow coloring matter, gum, etc.

Guaiaci Lignum, *Guaiacum Wood,*—generally used in the form of raspings of greenish-brown color containing whitish particles, of resinous odor, taste slightly acrid. Is a constituent of Decoctum Sarsaparillæ Compositum.

Guaiaci Resina, *Guaiac,*—occurs in large masses of a greenish-brown or reddish-brown color, feebly aromatic, taste somewhat acrid, fracture having a glassy lustre, insoluble in water, soluble in alcohol, ether, chloroform and alkaline fluids. Dose, gr. v–xxx, in wafer. Is a constituent of Pil. Antimonii Compositæ.

Preparations.

Tinctura Guaiaci, *Tincture of Guaiac*,—20 per cent. Dose, ♏ v–ʒ j, in mucilage or syrups, as the resin is precipitated by water.

Tinctura Guaiaci Ammoniata, *Ammoniated Tincture of Guaiac*,—has of Guaiac 20, Aromatic Spirit of Ammonia to 100. Dose, ♏ v–ʒ ss.

PHYSIOLOGICAL ACTION.

Guaiac is diaphoretic, expectorant and alterative. Its taste is acrid and very disagreeable. Internally it is a local stimulant, producing salivation, an acrid sensation in the throat, warmth in the epigastrium, increase of the gastric and intestinal secretions and the flow of bile, and reflex stimulation of the heart. Its continued use causes gastric catarrh, and in large doses it is a gastro-intestinal irritant, causing vomiting, purging and severe congestive headache. Though a colloidal body it enters the blood, stimulates the liver and other excretory glands and the production of bronchial mucus, and causes increased circulation and diaphoresis. Sometimes it fails to act on the skin and then is markedly diuretic.

Incompatibles.

Mineral Acids and Spirit of Nitrous Ether are chemically incompatible with Guaiac preparations.

THERAPEUTICS.

Guaiacum was first used as an antisyphilitic, being employed in decoction and in large quantity, with a spare diet and external warmth. It acquired a great reputation in that disease during the 16th century, but it is now abandoned therefor except as an ingredient of the Compound Decoction of Sarsaparilla. It is a very efficient remedy in tonsillitis, given in ʒss doses of the tincture in emulsion with mucilage or yolk of egg, to abate the inflammation and abort the disease. It has considerable reputation in neuralgic dysmenorrhœa, amenorrhœa, chronic rheumatism, gout, lumbago and sciatica. The ammoniated tincture in water makes a cleanly and not very disagreeable gargle.

GUARANA,—is a dried paste chiefly consisting of the crushed or pounded seeds of *Paullinia Cupana*, a climbing plant of the nat. ord. Sapindaceæ, growing in Brazil. It occurs in brown cakes or sticks, having an odor of chocolate, and a bitter, astringent taste, partly soluble in water and in alcohol. It contains 25 per cent. of tannic acid, gum, albumen, starch, and a greenish fixed oil, also an alkaloid *Guaranine* (5 per cent.), which is thought to be identical with *Caffeine*. The specimens of Guarana in the market are very untrustworthy, unequal in quality and expensive, it being a secret mixture prepared in Brazil. Hence it has been omitted from the list of Squibb's preparations, a fluid extract of green coffee being substituted in its place.

Extractum Guaranæ Fluidum, *Fluid Extract of Guarana*.—Dose, ♏ x–ʒ ij.

Guarana has similar actions to those of Coffee, the active principles of both plants being perhaps identical, both chemically and physiologically. It is chiefly employed in the treatment of nervous sick-headache (migraine) administered in half-drachm doses of the fluid extract when the attack is developing. It has been used in the diarrhœa of phthisis, convalescence from acute diseases, and generally in conditions requiring tonic treatment.

GURJUN BALSAM, Balsamum Dipterocarpi, *Wood Oil* (Unofficial),—is an oleoresin obtained from incisions in various trees of the genus Dipterocarpus, growing in India. It is thick, opaque and grayish-brown by reflected light, soluble in chloroform and partly so in alcohol, ether and volatile oils, odor balsamic, taste bitter. It contains from 40 to 70 per cent. of a Volatile Oil, a Resin and *Gurjunic Acid.* Dose, ♏x–ʒij, in emulsion, or in capsules.

The properties of this balsam are similar to those of Copaiba, but it is less disagreeable and less apt to upset the stomach, also less actively diuretic. It has been used with good success in leprosy, given internally in full doses and used locally at the same time. Mixed with 4 parts of Lime-water it is well applied in chronic eczema, lupus and psoriasis.

HÆMATOXYLON, Log-wood,—is the heart-wood of *Hæmatoxylon campechianum*, a tree of the nat. ord. Leguminosæ, native of tropical America, but naturalized in the West Indies. It occurs in chips or powder of a dark brown-red color, often with a greenish lustre, of feeble and agreeable odor, taste sweet and astringent, and colors the saliva a dark pink when chewed. It contains Tannic Acid, and a sweet, crystalline coloring principle named *Hæmatoxylin*, $C_{10}H_{14}O_6$, which is colorless when pure, but turns red on exposure to light.

Preparations.

Extractum Hæmatoxyli, *Extract of Hæmatoxylon*,—Dose, gr. v–xx.

Decoctum Hæmatoxyli, *Decoction of Hæmatoxylon* (Unofficial),—strength 1 in 17. Dose, ℥j–ij.

Logwood is mildly astringent, its properties depending on the Tannin contained in it. As it is devoid of irritating qualities it is well adapted to the diarrhœas and hemorrhages of young children. It does not produce constipation nor disorder the bowels, but colors the urine and stools blood-red, and has caused phlebitis. It has been used as an hemostatic in bleeding of the lungs, and hemorrhages from the uterus and intestines, and as an astringent in leucorrhœa.

HAMAMELIS, Witch-hazel,—the leaves, collected in autumn, of *Hamamelis virginiana*, a shrub of the nat. ord. Hamamelaceæ, growing in the United States, having yellow flowers and oval-shaped leaves about 4 inches long, which are inodorous, but of a bitter and astringent taste. They contain about 8 per cent. of Tannic Acid, a bitter principle and probably some volatile matters, but the chemistry of the plant has not been fully studied.

Preparations.

Extractum Hamamelidis Fluidum, *Fluid Extract of Hamamelis.*—Dose, ♏j–ʒj, is the only official preparation, and is prepared from the leaves.

Hamamelin (Unofficial),—is an uncertain extract of very indefinite composition. Dose, gr. j–ij.

Distilled Extracts, so-called, but really Waters distilled from the bark, are sold by various manufacturers, and are said by the vendors to contain the volatile principles of the plant. **Pond's Extract** is such a preparation, said to be made by distilling the bark with a very dilute alcohol, and a proprietary medicine of uncertain composition.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

No trustworthy experimentation has yet been made with this drug. It is tonic, astringent, styptic and sedative, owing most of its properties to its Tannin, but appears to possess some special influence over the venous circulation similar to that of Aconite on the arterial system. In full doses it may produce severe throbbing pain in the head. It is used both internally and locally with great benefit in hemorrhoids, particularly those of the bleeding variety, varicose veins and ulcers, varicocele, venous congestions and threatening local inflammations. It is highly recommended in hemorrhages from the nose, stomach, lungs, rectum and kidneys, in threatened abortion, and externally for sprains and bruises, foul ulcers, the pruritus of eczema, leucorrhœa and gonorrhœa. An Ointment of Witch-hazel is found in the shops, and suppositories may be prepared extemporaneously by evaporating the fluid extract and incorporating the residue with cocoa-butter.

HEDEOMA, Pennyroyal,—the leaves and tops of *Hedeoma pulegioides*, a plant of the nat. ord. Labiatæ, common to all parts of the U. S., having a four-sided, hairy stem, pale blue flowers, leaves ½ inch long, glandular on the under surface, odor strong and mint-like, taste pungent. Its only important constituent is the Volatile Oil, which is official.

Preparations.

Oleum Hedeomæ, *Oil of Pennyroyal,*—is the volatile oil, readily soluble in alcohol. Dose, ♏ij-x.

Spiritus Hedeomæ, *Spirit of Pennyroyal* (Unofficial),—contains 1 part of the oil in 9 of alcohol. Used externally or as spray.

Hedeoma is a stimulant aromatic, also somewhat carminative and emmenagogue. Its odor is extremely repulsive to insects, especially fleas and mosquitoes. In warm infusion it is a popular remedy for amenorrhœa and flatulent colic. It may be used as a corrective with other medicines, and the spirit is well employed on the hands and face to keep away mosquitoes. The writer has known death by narcosis to result from an overdose of the oil self-taken to produce an abortion.

HELLEBORUS, Hellebore (Unofficial),—the rhizome and rootlets of *Helleborus niger* (Black Hellebore) and *Helleborus viridis* (Green Hellebore), plants of the nat. ord. Ranunculaceæ, natives of Europe. A third variety, *Helleborus occidentalis*, growing in Greece, is probably the true Hellebore of the ancients. The rhizome is 1 to 3 inches long, knotty, with transverse rings, of rancid odor when freshly bruised, and bitter, acrid taste. Its most important constituents are two glucosides, *Helleborin* and *Helleborein*, both crystalline and very poisonous.

Preparations.

Extractum Hellebori Nigri, *Extract of Black Hellebore* (Unofficial).—Dose, gr. j-x cautiously.

Extractum Hellebori Nigri Fluidum, *Fluid Extract of Black Hellebore* (Unofficial).—Dose, ♏ij-xv.

Helleborin, $C_{36}H_{42}O_6$ (Unofficial),—crystalline, insoluble in water, soluble in alcohol and chloroform.

Helleboreïn, $C_{26}H_{44}O_{15}$ (Unofficial),—crystalline, very soluble in water, slightly-so in alcohol, insoluble in ether. Dose, gr. $\frac{1}{16}$–$\frac{1}{10}$.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

BLACK HELLEBORE is a drastic, hydragogue cathartic, and an emmenagogue. In overdoses it is a violent gastro-intestinal irritant, producing vomiting, hypercatharsis, vertigo, cramps and convulsions, which may result fatally. Locally applied, the fresh root is violently irritant to the skin, producing inflammation and vesication.

HELLEBORIN is an active poison, acting on the tongue like Aconite, and on the nervous system as a narcotic, producing in animals paresis of motion and sensation, cerebral and spinal congestion, dilated pupils and death. It is less irritant than Helleboreïn to the mucous membranes.

HELLEBOREÏN is less actively toxic to animals, but is very irritant, producing conjunctivitis, sneezing, salivation, nausea, vomiting and purging. It affects the heart like Digitalis, small doses frequently repeated slowing its action, but large ones quicken it and then suddenly paralyze it through the pneumogastric nerve. Respiration is at first accelerated, then slowed and rendered laborious. Diuresis is a constant result, the kidneys and uterus are congested, gradual paralysis and severe convulsions follow, and death occurs by paralysis of the heart.

BLACK HELLEBORE is an old remedy, having been highly esteemed by the early physicians in insanity, dropsies, worms, cutaneous affections and amenorrhœa. It has at present gone out of fashion, but might be usefully employed in dropsies and as a revulsant in acute cerebral affections. Recently HELLEBOREÏN has come into notice as a substitute for Digitalis in cardiac affections, as being of less bulk and more definite composition. Its action on the heart is obtained by doses much smaller than those necessary for its irritant effects on the gastro-intestinal canal. Its solubility in water and the freedom with which it can be used hypodermically are important qualities to recommend it.

HOANG-NAN, or **Hwang-Nao** (Unofficial),—is the bark of *Strychnos Gaultheriana*, Tropical Bind-weed, a creeping vine of the nat. order Loganiaceæ, found in the mountains of Tonquin. It contains the alkaloids *Strychnine* and *Brucine*, thus resembling in composition its congeners Nux-Vomica and Ignatia, but differing from them, as they do from each other, in the proportional quantities in which the alkaloids are contained,—Brucine predominating in this plant, as Strychnine does in the other two.

Like the other members of the Strychnos family, Hoang-Nan is an active tetanizer, its action generally corresponding with that of Nux-Vomica. It was first brought into notice by the missionary fathers stationed in the French colonies in Asia, they having found its employment general among the natives for leprosy and hydrophobia. Along the coast of Tonquin and Cochin-China, and in Pondicherry, Trinidad, Venezuela, etc., it has an established reputation in the two terrible diseases mentioned, also as a remedy for the bites of venomous serpents and other reptiles, scrofulous and syphilitic ulcers, indolent sores, etc. It has been used successfully for malarial fevers, in lieu of quinine, and is highly spoken of by Father Brosse, as a stimulant to the intellect, without producing any subsequent depression.

The dose of the powdered drug is about gr. iij–v; of the aceto-alcoholic Extract, gr. ¼-½; and of the concentrated Tincture, ♏ j–v.

HUMULUS, Hops,—the strobiles (fruit-cones) of *Humulus Lupulus*, a cultivated creeping plant of the nat. ord. Urticaceæ. They are ovate, 1 to 1½ inch long, and consist of a hairy, undulating axis and several membranous, greenish scales, odor aromatic, taste bitter, aromatic and slightly astringent. Its constituents are wax, resins (50 per cent.), tannin (5 per cent.), a liquid volatile alkaloid named *Lupuline*, a Volatile Oil (2 per cent.) which consists in part of *Valerol* and *Trimethylamine*, and the crystalline, bitter principle, *Lupulinic Acid* (11 per cent.). These, except tannin, are more abundant in the glandular powder of the strobiles, which is named *Lupulin*.

Preparations.

Tinctura Humuli, *Tincture of Hops*,—strength 20 per cent. Dose, ʒj–ij.

Infusum Humuli, *Infusion of Hops* (Unofficial),—℥ss to the pint. Dose, ℥j–iv.

Lupulinum, *Lupulin*,—is the glandular powder separated from the strobiles, of bright brownish-yellow color, aromatic and bitter taste. The Volatile Oil resides in the Lupulin grains, and contains *Valerol*, which is changed into *Valerianic Acid* by long exposure, giving a disagreeable odor to old hops. Dose, gr. v–xv.

Extractum Lupulini Fluidum, *Fluid Extract of Lupulin*,—alcoholic. Dose, ♏x–ʒj.

Oleoresina Lupulini, *Oleoresin of Lupulin*,—an ethereal extract. Dose, gr. ij–v.

Tinctura Lupulini, *Tincture of Lupulin* (Unofficial),—strength ⅛. Dose, ʒss–ij.

Mineral acids and metallic salts are chemically incompatible with preparations of Hops.

HUMULUS is a bitter tonic, and a feeble hypnotic, also somewhat diaphoretic, astringent and anaphrodisiac. It increases the cardiac action and the cutaneous circulation. After slight cerebral excitement it produces calm and a soporific disposition, especially if the solution administered be strongly alcoholic. The stomachic and tonic effects are due to the bitter principle, lupulinic acid, and are found in bitter ale. The primary stimulant and secondary sedative effects are due to the volatile oil and are also possessed by ales and beer.

Hops are used as a tonic and calmative in delirium tremens, in which a combination of the tincture with Tr. Capsici is very efficient and is an excellent substitute for alcohol. In dyspepsia of atonic form Humulus is an excellent stomachic tonic, and in nervous irritability the fluid extract of Lupulin may be used as a calmative and hypnotic, or the hop-pillow, which certainly exercises considerable influence, imaginary or otherwise. A poultice of hops is a favorite domestic application in inflammations and pain. Lupulin has been used with benefit in irritable bladder, and alcoholism, and as an anaphrodisiac in the treatment of chordee, gonorrhœa, spermatorrhœa and other affections of the genito-urinary organs.

HYDRANGEA (Unofficial),—is the root of *Hydrangea arborescens*, a plant of the nat. ord. Saxifragaceæ, growing in the southeastern U. S. It is a white, tough root, having a thin brown bark which peels off in spots, inodorous, taste insipid, afterwards pungent. It contains gum, albumen, starch, resin, and a ferrous salt, with other salts. Dose, ʒss–ʒij, best in fluid extract. A decoction of the root may be used in doses of ℥j–ij.

Hydrangea has been long used by the Cherokee Indians in calculous affections, and reports of cases by competent observers show that it is of unquestionable utility in this class of disorders, promoting the removal of gravel from the bladder, and relieving pain during the passage of renal concretions through the ureters. Large doses produce vertigo, oppression of the chest, and considerable cerebral disturbance.

HYDRARGYRUM, Mercury, Quicksilver, Hg,—is a shining, silver-white metal, fluid and slowly volatile at ordinary temperatures, solidifies at —39° F., boils at 675° F., volatilizes without residue, insoluble in ordinary solvents, wholly soluble in nitric acid, odorless and tasteless, sp. gr. 13.558 at 59° F.

Preparations of Mercury.

Hydrargyrum cum Creta, *Mercury with Chalk, Gray Powder*,—has of Mercury 38, Honey 10, Prepared Chalk 57, Water to 100, triturated together to a uniform gray powder. Dose, gr. ss–x.

Massa Hydrargyri, *Mass of Mercury, Blue Mass, Blue Pill*,—has of Mercury 33, Liquorice 5, Althæa 25, Glycerin 3, Honey of Rose 34. Each grain contains gr. $\frac{1}{3}$ of Mercury. Dose, gr. ss–xx.

Unguentum Hydrargyri, *Mercurial Ointment, Blue Ointment*,—Mercury 50, Lard 25, Suet 23, Oleate of Mercury 2, triturated together, until globules of Mercury cease to be visible under a lens having a magnifying power of ten diameters.

Emplastrum Hydrargyri, *Mercurial Plaster*,—Mercury 30, Oleate of Mercury 1.2, Lead Plaster to 100.

Emplastrum Ammoniaci cum Hydrargyro, *Ammoniac Plaster with Mercury*,—see *ante*, page 107.

Chlorides and their Preparations.

Hydrargyri Chloridum Corrosivum, *Corrosive Mercuric Chloride, Bichloride of Mercury, Corrosive Sublimate*, $HgCl_2$,—heavy, colorless crystals, of acrid, metallic taste, and acid reaction; soluble in 16 of water and 3 of alcohol, in 2 of boiling water, 1.2 of boiling alcohol, 4 of ether and in about 14 of glycerin. Dose, gr. $\frac{1}{50}$–$\frac{1}{16}$.

Hydrargyri Chloridum Mite, *Mild Mercurous Chloride, Subchloride of Mercury, Calomel*, Hg_2Cl_2,—a heavy, white, impalpable powder, odorless and tasteless; insoluble in water, alcohol or ether. Is an ingredient of Pil. Antimonii Co. and Pil. Catharticæ Co. Dose, gr. $\frac{1}{20}$–x.

Hydrargyrum Ammoniatum, *Ammoniated Mercury, White Precipitate, Mercuric Ammonium Chloride*, NH_2HgCl,—is a white, insoluble powder, odorless and tasteless. Only used externally.

Unguentum Hydrargyri Ammoniati, *Ointment of Ammoniated Mercury, White Precipitate Ointment*,—Ammoniated Mercury 10, Benzoinated Lard 90.

Oxides and their Preparations.

Hydrargyri Oxidum Flavum, *Yellow Mercuric Oxide*, HgO,—an orange-yellow, heavy, impalpable powder, odorless and tasteless, insoluble in water or alcohol, but wholly soluble in nitric or hydrochloric acid. Used to prepare :—

Unguentum Hydrargyri Oxidi Flavi, *Ointment of Yellow Mercuric Oxide*,—strength 1 to 9 of Ointment (Unguentum).

Oleatum Hydrargyri, *Oleate of Mercury,*—has of the Yellow Oxide 20, Oleic Acid 80.

Hydrargyri Oxidum Rubrum, *Red Mercuric Oxide, Red Precipitate,* HgO,—a heavy, orange-red, crystalline powder, having the same properties as the yellow oxide, from which it differs only in being crystalline, and in not such a minute state of subdivision. Dose, gr. $\frac{1}{30}$–$\frac{1}{10}$.

Unguentum Hydrargyri Oxidi Rubri, *Ointment of Red Mercuric Oxide,*—strength 1 to 8½ of Unguentum and ½ of Castor Oil.

Iodides and their Preparations.

Hydrargyri Iodidum Rubrum, *Red Mercuric Iodide, Red Iodide* (*Biniodide*) *of Mercury,* HgI_{2},—a scarlet-red, crystalline powder, almost insoluble in water, soluble in 130 of alcohol, in solution of Potassium Iodide or of Mercuric Chloride. Prepared by double decomposition between Potassium Iodide 5, and Mercuric Chloride 4 parts. Dose, gr. $\frac{1}{32}$–$\frac{1}{16}$.

Liquor Arsenii et Hydrargyri Iodidi, *Solution of Arsenic and Mercuric Iodide, Donovan's Solution,*—see *ante,* page 131.

Hydrargyri Iodidum Flavum, *Yellow Mercurous Iodide, Protiodide of Mercury,* $Hg_{2}I_{2}$,—a dull green or greenish-yellow powder, insoluble in alcohol or ether and almost so in water. Dose, gr. $\frac{1}{10}$–$\frac{1}{3}$.

Acid Combinations and their Preparations.

Liquor Hydrargyri Nitratis, *Solution of Mercuric Nitrate,*—a liquid containing in solution about 60 per cent. of Mercuric Nitrate, $Hg(NO_{3})_{2}$, with about 11 per cent. of free Nitric Acid. Prepared from the Red Mercuric Oxide 40, by Nitric Acid 45, and Distilled Water 15. Used as a caustic.

Unguentum Hydrargyri Nitratis, *Ointment of Mercuric Nitrate, Citrine Ointment,*—prepared by dissolving Mercury 7, in Nitric Acid 17½, and adding Lard Oil 76.

Hydrargyri Subsulphas Flavus, *Yellow Mercuric Subsulphate, Basic Mercuric Sulphate, Turpeth Mineral,* $Hg(HgO)_{2}SO_{4}$,—a heavy, lemon-yellow powder, practically insoluble in water or alcohol, soluble in nitric acid, and in 10 of HCl without residue. Dose, as an emetic, gr. ij–v.

Cyanide.

Hydrargyri Cyanidum, *Mercuric Cyanide,* $Hg(CN)_{2}$,—colorless, prismatic crystals, of bitter, metallic taste, soluble in 12.8 of water and in 15 of alcohol at 59° F. Dose, gr. $\frac{1}{100}$–$\frac{1}{16}$.

Triturations.

These may be prepared according to the general formula under "Triturationes" in the Pharmacopœia, 10 parts of the substance to 90 of Sugar of Milk. Mercury itself or any of its salts may be so treated with excellent results, the particles being much finer and therefore more easily absorbed than if rubbed up with another agent.

Unofficial Preparations.

Lotio Hydrargyri Flava, *Yellow Wash,*—prepared by adding Corrosive Sublimate gr. xviij to Lime water ℥x, producing the yellow oxide, a favorite application for syphilitic sores.

Lotio Hydrargyri Nigra, *Black Wash,* prepared by adding Calomel gr. xxx, to Lime-water ℥x, producing the black oxide, and used as an application to syphilitic sores.

Unguentum Hydrargyri Nitratis Rubrum,—*Red Ointment of Mercuric Nitrate, Brown Citrine Ointment,*—differs from the official ointment only in being made with Cod-liver Oil, which gives it a brown color, and a more agreeable odor.

PHYSIOLOGICAL ACTION.

Mercury is tonic, purgative, alterative, antiphlogistic and sorbefacient, but not directly cholagogue. Some of its salts are corrosive poisons, others are local caustics, all produce by long-continued administration the peculiar cachexia termed Hydrargyrism. The metal itself is inert, but by combination with the acids and fluids of the body becomes active, and is easily absorbed in any form, passing into the blood from the skin, mucous membranes, lungs and stomach, in each case probably as an Oxyalbuminate of Mercury. Entering the stomach in any form it is first converted into a double Chloride of Sodium and Mercury, then uniting with the albuminous juices to form a complex molecule of Mercury, Sodium, Chlorine and Albumen, which being soluble in an excess of sodium chloride or albumen, exists in solution, and is easily absorbed, being decomposed in the blood and changed to the oxyalbuminate. Entering the intestines a purgative action is soon set up, of more or less severity according to the preparation used, a small portion only is absorbed, the rest being converted into a Sulphide and excreted with the fæces, unless combined with opium, which delays its progress through the intestines and permits of its greater absorption. In the blood its effects, in small doses, are tonic, but in quantity it indirectly produces impoverishment thereof, impairs the ozonizing function, diminishes the red corpuscles, and consequently disorders nutrition and deranges digestion. From the blood it enters the tissues, where it remains for an indefinite period, exerting a peculiar influence, termed "alterative," on all processes characterized by growth of young cells, but not producing any definite anatomical changes either in the viscera or the nervous tissue, though in the latter a low form of inflammation arises, resulting in loss of coördination-power. It stimulates most of the glands of the body, to the production of pathological secretions, especially the salivary glands and the pancreas, and is excreted with comparative slowness by all the excretory organs, being found in the saliva, sweat, milk, urine and bile. It tends to accumulate in the liver, while stimulating its cells, and is not a cholagogue, though stimulating the flow of bile already secreted by reflex action on the bile-ducts due to its direct purgation of the duodenum. Its excretion is hastened and completed by the use of Potassium Iodide.

In small doses administered for a short time the mercurial preparations are blood-tonics, improving its general condition, increasing the number of red corpuscles and the body weight. They soon begin to promote waste by stimulating the lymphatic system, and if the small doses are long continued or the quantity is increased, symptoms of mercurial poisoning begin to manifest themselves.

The first symptoms of HYDRARGYRISM are fetid breath, swollen and spongy gums having a bluish line along their margins, stomatitis, sore and loosened teeth, inflamed and tender salivary glands pouring out a peculiar, thin saliva of foul odor in large quantity, and a metallic taste in the mouth. Anorexia, diarrhœa and fever follow, also ulceration and in some cases even gangrene of the lips and tongue. If the use of the drug be continued nutrition will be greatly impaired through the extreme promotion of retrograde metamorphosis, and various nervous disturbances will follow, the effects being emaciation, pallor, œdema, ulcerated skin, erythematous, vesicular or pustular eruptions, headache, insomnia, neuralgia, tremor through paresis of the muscles of the head and extremities, epilepsy, coma and convulsions. In pregnant women abortion will occur by reason of the impoverishment of the blood. Indeed, as Dr. Ringer said in the earlier editions of his *Handbook of Therapeutics*, the phenomena produced by mercury are singularly similar to those which will result from syphilis, and the serious symptoms known as secondary and tertiary syphilis can be produced both by syphilis and by mercury. The drug is a specific antagonist to the syphilitic virus, probably by reason of its affecting the same organs and tissues of the body on a similar line of action, both poisons mutually destroying each other in the organism. It is certainly capable of bringing about a radical cure of syphilis, if introduced into the system in considerable quantity and its use protracted over a very long time, the action of the drug in all cases being kept short of ptyalism or any pronounced physiological effects.

Salivation is most readily produced by Blue Mass, next by Calomel, and less easily by Gray Powder. Individuals differ greatly in their susceptibility to the action of mercury, some persons having been affected after a single moderate dose. Children are not easily salivated. Inhalation of mercurial vapors is apt to affect the nervous system most; its internal administration and that by inunction are more likely to produce salivation.

The observations on the antiphlogistic and sorbefacient actions of Mercury are clinical rather than physiological, but it is generally agreed that exhibited in inflammation mercurials antagonize the increase of the hæmic fibrin which is so constant an effect of the inflammatory process, and that in chronic diseases attended by the formation of semi-organized deposits, a mild mercurial course will almost insensibly remove the new-formed material.

A not uncommon result of full doses of Blue Pill is an acute coryza of very severe character, which the writer has frequently observed to follow on neglect of the old-fashioned precaution to "work off" the mercurial by a saline cathartic. The symptoms produced are those of a severe attack of influenza,—epistaxis, conjunctivitis and obstinate muco-purulent discharge from the nasal passages being especially marked. Similar effects have been observed during physiological experiments with mercury on animals by Overbeck and Bennett.

NOTES ON THE ACTION OF THE PREPARATIONS.

METALLIC MERCURY is not used internally except in the finely-divided form obtained in Blue Pill and Gray Powder, which are capable of producing all the effects above described. Mercurial Ointment is the preparation generally used for inunction, a piece the size of a small nut being daily rubbed into the soft skin at the flexures of joints. The Oleate painted over the surface is a more cleanly method of making the same application. Both these preparations are efficient parasiticides.

The Bichloride is the most actively toxic of the mercurial salts. It is probably the most active zymoticide and parasiticide, a solution of 1 part in 2000 being efficiently antiseptic for use as injections or dressings, and one of 1 to 250 being the usual strength for use against epizoa and parasitic skin affections. It is a very active gastro-intestinal irritant, in toxic dose producing nausea, retching and vomiting, a metallic taste, constriction of the fauces, burning pain in the stomach, suppression of urine, bloody diarrhœa, collapse and death often preceded by convulsions. It affects specifically the lower bowel [Calomel preferring the upper intestine], and produces inflammation and ulceration of the rectum. It is, however, one of the most manageable and efficient of the mercurials when used in proper doses.

The Subchloride (Calomel) is very insoluble and unirritating, tasteless, laxative in grain doses, decomposed by the alkaline contents of the intestines, the Oxide of Mercury being formed, and acts especially on the excrementitious glandular appendages of the upper intestine, stimulating the liver by indirect reflex action as a duodenal purgative. In the presence of alkaline chlorides it is converted into the Bichloride, but not in sufficient quantity to render it dangerous in the gastro-intestinal canal. Externally applied it is very sedative to the mucous membranes and the skin. Calomel is a very efficient diuretic, in small doses frequently repeated.

Ammoniated Mercury is an Ammonio-Chloride, and a useful stimulant and parasiticide when used locally in the form of ointment.

The Iodides are actively poisonous, the Red being much the most irritant, in overdoses producing symptoms and results very similar to those caused by the Bichloride. The Cyanide is also actively poisonous. The Yellow Subsulphate is a prompt and usually harmless emetic, but has occasionally produced fatal results by local irritant action. The Oxides are irritant, the Red being the most so, and are rarely used internally. The Acid Nitrate is a good escharotic, the pain caused by it being transient though severe, and its caustic action being comparatively superficial. The Ointment of the Nitrate (Citrine Ointment) is more irritant than that of the Ammoniated Mercury, and generally needs dilution. All these preparations may produce the constitutional effects of mercury, and their administration should be carefully watched for the first symptoms of mercurialization.

Antidotes and Incompatibles.

Albumen in some form, the white of one egg to gr. iv of the Bichloride, forms the albuminate, which must be at once evacuated by emesis or the stomach pump, as it is soluble in excess of albumen or in the alkaline contents of the intestines.

The Chlorides are incompatible with very many agents, and the Bichloride should be administered in distilled water or pill by itself, being easily decomposed. Calomel is decomposed by alkaline Iodides or Bromides. The combination of Calomel with Hydrochloric Acid or Chlorides is apt to produce Corrosive Sublimate. In the "mixed treatment" of syphilis, a mercurial is combined in solution with Potassium Iodide, and the Red Iodide is the preparation usually selected, as the Bichloride is decomposed by the Potassium Iodide, Red Iodide of Mercury being precipitated. All trouble regarding incompatibility can be avoided by using sugar of milk triturations according to the general official formula therefor. In this form, says Piffard, "a larger proportion of the drug is utilized for specific purposes, while but a small amount remains to give rise to local irritation."

THERAPEUTICS.

Mercury is undoubtedly a specific in syphilis, but is not applicable to the tertiary form of that disease. It is best administered in very small doses carefully watched and stopped just short of ptyalism, but renewed and so continued for a long time. Fumigation by Calomel volatilized by heat, or inunction by the Oleate or by Mercurial ointment may be used when the stomach will not bear any mercurial. The hypodermic method is also used, employing a solution of the Bichloride gr. j to ℥j each of glycerin and distilled water, of which the dose is ♏x once daily; or the Albuminate in solution with Sodium Chloride. The Yellow Iodide in doses of gr. $\frac{1}{10}$ to $1/6$ thrice daily with Opium is the best preparation for internal use. Accuracy of diagnosis is an absolutely necessary preliminary to the administration of Mercury, for where there is no syphilitic virus to be antagonized the constitutional effects of mercurials will become manifest sooner and may do great harm in feeble subjects, besides the risk of mistaking them for the results of the disease supposed to be present.

Tonsillitis, parotitis and other acute glandular inflammations of the throat and neck may often be rapidly cured by Calomel gr. $\frac{1}{20}$ or Gray Powder gr. $\frac{1}{3}$ every two hours. In irritable stomach with obstinate vomiting the same small doses of Calomel every half hour are very efficient. The dysentery of adults with slimy and bloody stools is best treated by small doses (gr. $\frac{1}{100}$) of the Bichloride, and in the diarrhœa and dysentery (ileo-colitis) of infants Gray Powder gr. $\frac{1}{6}$ or Calomel gr. $\frac{1}{20}$ will be found very effective. In gastric ulcer and in the first stage of hepatic cirrhosis, the Bichloride in doses of gr. $\frac{1}{60}$ to $\frac{1}{30}$ thrice daily is a good remedy. Typhoid fever is treated in Germany by daily doses of Calomel, gr. x, for three days as an antipyretic. Diphtheria is by many practitioners, considered to be best antagonized by Calomel in large doses, and in this affection the Cyanide has many advocates given in doses of gr. $\frac{1}{100}$–$\frac{1}{25}$ every hour, a weak solution being at the same time used as a gargle. Asiatic cholera is frequently treated by small, repeated doses of Calomel with Opium from the start. Inflammations of sthenic character in the stage of exudation, especially when affecting serous membranes, are considered by many authorities to be best met by the free use of mercurials, but this treatment is fast going out of favor, excepting in cases of iritis, which, however, is very often of syphilitic causation, and pneumonia, which is frequently treated, according to the best American authorities, with sedative doses (gr. xv–xx) of Calomel.

In the general condition known as "biliousness," manifested by whitish or clay-colored stools, constipation, nausea, anorexia, coated tongue, slight jaundice, etc., mercurial purgatives have long been a routine remedy, but mild saline purgatives are by many authorities considered equally efficient. As an antiseptic to the gastro-enteric tract in many forms of stomach and intestinal disorders (dyspepsia septica), the administration of minute doses of the Yellow Oxide of Mercury will be found remarkably efficient. It is best used in trituration with sugar of milk, 1 to 1000, and in daily doses of gr. $\frac{1}{60}$–$\frac{1}{50}$. By the use of these small doses failing digestion and nutrition may almost certainly be improved.

In membranous laryngitis or true croup the Subsulphate as an emetic is by many considered to have some specially beneficial influence.

Locally, an ointment of Calomel ʒj to ℥j of Lard is an excellent antipruritic, and ointments of the Chlorides and Iodides are much used in skin diseases, particularly psoriasis, herpes, acne, and pityriasis. In parasitic affections a lotion of the Bichloride, gr. ij to ℥j of distilled water, or a 5 per cent. Oleate with ⅛th part of Ether, are very efficient. The Oleate is a serviceable application to syphilitic indurations, but is not deemed advisable when ulceration exists. In conjunctivitis Calomel may be used as a sedative application, or still better an Ointment of the Yellow Oxide, gr. x to ℥j of Vaseline, triturated to the utmost fineness before mixing. Goitre and enlarged spleen are often speedily reduced by rubbing into the skin covering them the Ointment of the Red Iodide somewhat diluted and applied before a hot fire or in the direct sunlight. The Acid Nitrate Solution is one of the best caustics for destroying chancroid and syphilitic warts and vegetations. Black and Yellow Wash are used as applications to syphilitic erosions and ulcerated indurations.

As an antiseptic injection or application to dressings a solution of the Bichloride, gr. vijss in a quart of hot water ($\frac{1}{2000}$), is probably the most efficient that can be used, and still weaker solutions ($\frac{1}{5000}$) are sufficiently antiseptic for most purposes.

HYDRASTIS, Golden Seal,—the rhizome and roots of *Hydrastis canadensis*, a small plant of the nat. ord. Ranunculaceæ, growing in most parts of the U. S. The rhizome is 1½ inch long, rough, bent and branched, externally of a yellowish-gray color, internally a bright reddish-yellow, having numerous thin, brittle rootlets, a slight odor and a bitter taste. It contains an unnamed Resin and 3 alkaloids, *Hydrastine*, $C_{21}H_{21}NO_6$, white and crystalline, soluble in alcohol, ether, etc., *Berberine*, $C_{20}H_{17}NO_4$, yellow crystals soluble in hot water and alcohol, but not in ether (see page 147), and *Xanthopuccine*, also yellow and crystalline. All these alkaloids unite with acids to form salts. From Hydrastine is prepared an oxidation product or artificial alkaloid, *Hydrastinine*, $C_{11}H_{11}NO_2$, the Hydrochlorate of which is official.

Preparations.

Extractum Hydrastis Fluidum, *Fluid Extract of Hydrastis.*—Dose, ♏v–xxx.

Tinctura Hydrastis, *Tincture of Hydrastis*,—strength, 20 per cent. Dose, ʒss–ij.

Glyceritum Hydrastis, *Glycerite of Hydrastis*,—Hydrastis 2, in Glycerin 1, by percolation, with Alcohol and Water. Used as a local application.

Hydrastininæ Hydrochloras, *Hydrastinine Hydrochlorate*, $C_{11}H_{11}NO_2HCl$,—the hydrochlorate of an artificial alkaloid derived from Hydrastine. Light yellow, amorphous granules, deliquescent, very soluble in water, also in 3 of alcohol. Dose, gr. j in 10 per cent. solution, as a hypodermic injection.

Hydrastin (Unofficial),—an impure extract precipitated by Hydrochloric Acid from the alcoholic solution, chiefly consisting of Berberine Muriate. Dose, gr. ij–v.

PHYSIOLOGICAL ACTION.

HYDRASTIS is a simple bitter and a stomachic tonic. It promotes appetite and digestion and increases the secretions of the gastro-intestinal tract and the flow of bile, but if long used it will derange digestion and produce constipation. It is possessed of antiperiodic powers, and is a protoplasmic poison, arresting the movements of the white blood-corpuscles. By many observers it is also considered alterative to the mucous membranes, deobstruent to the glandular system, cholagogue, diuretic and antiseptic. The alkaloid HYDRASTINE produces effects on the nervous system somewhat similar to those caused by Quinine, but seems to be devoid of toxic power, large doses only producing a sense of warmth in the epigastric region, and noises of a rushing character in the ears.

Incompatibles.

Tannic Acid, Hydrochloric Acid and the Alkalies are chemically incompatible with preparations of Hydrastis.

THERAPEUTICS.

HYDRASTIS is chiefly used as a stomachic tonic, an antiperiodic, a mild laxative and an antiseptic. Its alkaloid (Hydrastine) and extract (Hydrastin) are ranked high in the treatment of intermittents and chronic malaria, though much less efficient than Quinine. It is an excellent remedy locally and internally in all forms of catarrh, especially that of the stomach, duodenum, gall-ducts, bladder, uterus and vagina. Internally it is efficient in many glandular swellings, in chronic constipation due to a sluggish state of the liver or deficiency of the other intestinal secretions, in chronic dyspepsia, and as a substitute for alcohol in dipsomaniacs when a catarrhal state of the stomach has been induced. In gonorrhœa, gleet, and chronic nasal catarrh, it is locally employed with much benefit, also in syphilitic affections of the mouth, throat and nares. As a local alterative and antiseptic application it is highly recommended for unhealthy ulcers and sores, cancerous ulcerations, mercurial and aphthous stomatitis, rectal fissure, fistula and prolapse, internal and external hemorrhoids, cracks, fissures and abrasions of the nipples, erosion and ulceration of the cervix uteri, and in conjunctivitis with muco-purulent discharge. In gonorrhœa a very efficient injection is an infusion of Hydrastis, ʒj of the powdered root to ℥viij of boiling water, or the fluid extract diluted in the proportion of ʒss or ʒj to the pint of water, but it should not be used until the acute stage has subsided.

Hydrastinine has long been known as a uterine vaso-constrictor, and as such has been successfully employed in metrorrhagia. It has lately been credited with powerful qualities as an antispasmodic, and also as efficiently diminishing the excitability of the cerebral cortex. It is considered preferable to Hydrastine on account of its stimulant action on the cardiac muscle, and the persistent constriction which it produces in the walls of the vessels. The Hydrochlorate is employed in grain doses hypodermically, using a 10 per cent. solution ; the injections being best made, for menstrual irregularities, during a few days previous to the expected term. It has been used with great benefit in uterine hemorrhage and dysmenorrhœa ; also in metritis, endometritis, myomata and pyo-salpingitis. More recently it has been employed in the treatment of hydrophobia, strychnine-poisoning and epilepsy, in the latter case having been given *per orem* in doses of gr. ¼–½ up to gr. ij daily ; and with benefit in four cases out of six.

HYDROCOTYLE, Pennywort (Unofficial),—is the leaf of *Hydrocotyle asiatica*, a small plant of the nat. ord. Umbelliferæ, a native of southern Africa and India. It contains a peculiar, oleaginous substance, *Vellarine*, which has a bitter, persistent taste, and is thought to be the active principle. It has long been used in its native countries as an alterative to purify the blood, and has been found of great service in eczema, lupus, psoriasis, syphilitic and scrofulous sores, and in leprosy. An ounce of the dried plant or leaves is given daily in infusion. It causes great itching over the whole body, ovarian pain in females, and urinary irritation. In one case in which the drug was being given for lupus of the hand a severe orchitis was set up without any other apparent cause. It certainly exerts a markedly special influence on the genito-urinary tract.

HYDROGENII DIOXIDUM, Hydrogen Dioxide, H_2O_2,—is official in the aqueous Solution, viz. :—

Aqua Hydrogenii Dioxidi, *Solution of Hydrogen Dioxide, Solution of Hydrogen Peroxide*,—a slightly acid, aqueous solution, containing, when freshly prepared, about 3 per cent. of the pure Dioxide, corresponding to about 10 volumes of available oxygen. Prepared by agitating Barium

Dioxide in cold distilled water, adding Phosphoric and Dilute Sulphuric Acids, filtering and diluting to the required strength. Dose, ʒj–iij, diluted with 3 to 4 of water.

A colorless liquid, without odor, slightly acidulous, producing a peculiar sensation and soapy froth in the mouth, of sp. gr. 1.006 to 1.012 at 59° F., liable to deteriorate by age, heat, or protracted agitation.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Hydrogen Dioxide, or Oxygenated Water, commercially known as Peroxide of Hydrogen, consists of water, to which nascent oxygen has been presented, whereby an additional atom of this element has entered into combination with the hydrogen, producing H_2O_2. In its purest condition it is a colorless liquid of sp. grav. 1.452, evolving when heated 475 times its volume of oxygen gas. The commercial article is an aqueous solution thereof, containing about 15 volumes of available oxygen, at which strength it is said to be permanent at ordinary temperatures: but it is found to undergo decomposition, in time, especially if agitated. When fresh, it is one of the most powerful oxidizing agents known, by reason of the facility with which it parts with oxygen to oxidizable substances brought in contact with it. It is, consequently, a powerful, yet non-toxic antiseptic, destroying morbid products and organized fermentations to which it is applied. In contact with a suppurating surface, it generates a white foam, as the result of its action on the pus. This soon subsides, leaving the subjacent tissue cleansed of all morbid secretions. One part added to 1000 of water containing sewage or infectious microbes, is sufficient to destroy the various organisms therein, if allowed to act for 24 hours.

As a bleaching agent, Hydrogen Dioxide has long been employed on delicate fabrics, and on the human hair for the production of the "bleached-blonde" hue so fashionable lately in certain circles of society. As a cleansing agent for foul wounds, ulcers, sores, and the like, it is highly efficient; and has been used with great benefit as a gargle or spray to the throat and nasal passages, in quinzy, croup, diphtheria, scarlet fever, ozæna, and other morbid conditions of these parts. As a diagnostic agent in determining the presence of pus, it is injected into the part in which suppuration is suspected, and indicates its contact with pus by causing an almost immediate swelling up of the part. If such a spot is cut into at once, pain is not felt. In this manner a number of suppurating buboes have been treated with great success.

As a disinfectant of drinking water suspected of pollution it is highly recommended, as it does not impair the taste or other potable qualities of the water, in the small quantity (1 to 1000 parts) needed for its efficient action. Used internally, it imparts oxygen to the blood, improves digestion, and relieves spasm of the respiratory apparatus,—aborting the paroxysms of whooping-cough. It gives great relief in chronic bronchitis with dyspnœa, and operates well in phthisis by promoting digestion, palliating cough, and giving increased activity to chalybeate remedies.

Pyrozone is the name given by a well-known manufacturer to a concentrated solution of Hydrogen Dioxide in Ether. It professes to contain about 50 per cent. of the dioxide, and is a very potent and efficient oxidizer, intended for external use only. It has abundant applications in the practice of surgeons. (Squibb.)

Sanitas is a proprietary solution for disinfecting purposes, containing Hydrogen Dioxide, and described under TEREBINTHINA.

HYOSCYAMUS, Henbane,—the leaves and flowering tops, collected from plants of the second year's growth, of *Hyoscyamus niger*, a biennial plant of the order Solanaceæ, growing in Europe and the northern U. S. The leaves are ovate, often ten inches long and 4 broad, of grayish-green color, glandular-hairy, midrib prominent, odor heavy and narcotic, taste bitter and acrid. It contains an alkaloid *Hyoscyamine*, $C_{17}H_{23}NO_3$, which is isomeric with Atropine and identical with Daturine and Duboisine, occurring as an oily liquid or in tufted crystals of silky lustre and yellow color, soluble in hot water, alcohol or ether. Another substance, *Hyoscine*, is by some authorities considered a derivative of Hyoscyamine, by others a second alkaloid. It is semi-liquid, isomeric with Atropine, and yields *Tropic Acid* and *Pseudotropine*. Hyoscyamus leaves also contain a fatty Oil and much Potassium Nitrate, while from their destructive distillation an empyreumatic Oil is obtained which is a powerful narcotic.

Preparations.

Extractum Hyoscyami, *Extract of Hyoscyamus*,—Dose, gr. j, when active.

Extractum Hyoscyami Fluidum, *Fluid Extract of Hyoscyamus*,—Dose, ♏v–xx.

Tinctura Hyoscyami, *Tincture of Hyoscyamus*,—Strength 15 per cent. Dose, ʒj–iv; as a hypnotic ℥ss–j is necessary.

All the preparations of Hyoscyamus are uncertain in strength and in activity, so much so that the effective dose of the extract official in U. S. P. 1870 ranged from 2 to 250 grains.

Hyoscyaminæ Sulphas, *Hyoscyamine Sulphate*, $(C_{17}H_{23}NO_3)_2\,H_2SO_4$,—small, yellow scales or crystals, which are deliquescent, of bitter taste, and very soluble in water and in alcohol. It varies much in purity of the base and consequently in activity. A grain of the commercial article, which was formerly very impure, has been given with impunity, but gr. $\frac{1}{40}$ of the pure alkaloid has produced violent poisoning. Dose, hypodermically, should not exceed gr. $\frac{1}{65}$; by the mouth gr. ¼–j may be given in urgent cases.

Hyoscyaminæ Hydrobromas, *Hyoscyamine Hydrobromate*, $C_{17}H_{23}NO_3HBr$,—a yellowish-white, amorphous mass, or prismatic crystals, of tobacco-like odor, and acrid, bitter, nauseous taste; deliquescent, soluble in ⅓ of water and in 2 of alcohol. Dose, as the Sulphate.

Hyoscyamine of good quality is difficult to procure and is very expensive, while Duboisine is easily obtained in any quantity, so that if these alkaloids prove to be physiologically as well as chemically identical, as is now claimed, the latter will be used to the exclusion of the former.

Hyoscinæ Hydrobromas, *Hyoscine Hydrobromate*, $C_{17}N_{21}NO_4HBr+3H_2O$,—colorless, transparent, rhombic crystals, odorless, of acrid, slightly bitter taste; soluble in 2 of water and in 13 of alcohol. Dose, gr. $\frac{1}{100}$–$\frac{1}{50}$ by mouth, gr. $\frac{1}{200}$–$\frac{1}{50}$ hypodermically.

PHYSIOLOGICAL ACTION.

HYOSCYAMUS has similar action to that of Belladonna, Duboisia and Stramonium, except that it is the least powerful and irritant of the group, but the most calmative and hypnotic. The delirium produced by it is never furious and is without hyperæmia, but is accompanied by insomnia. It is more stimulant to the vaso-motor system and to the cardiac accelerator apparatus than is Stramonium, but is less active on the pneumogastric. It has decidedly laxative and carminative effects on the intestines and a very marked sedative influence on the urinary passages.

HYOSCYAMINE corresponds in action to the plant and its congeners, being considered by many authorities as almost identical with Atropine, but less powerful. No death has directly resulted from it. Except in very large doses it is more an anodyne or anæsthetic than a narcotic or soporific. It is a mydriatic, excites the cerebral functions and depresses the spinal. Many observers deny that it has any soporific influence.

HYOSCINE is a cerebral and spinal sedative, and a powerful hypnotic, directly depressing the higher functions of the brain, and affecting the heart but feebly. It is probably the action of this agent which prevents Hyoscyamus having the excitation and delirium of Belladonna. After the hypodermic administration of a full dose (gr. $\frac{1}{50}$), there is, in most subjects, a period of semi-maniacal delirium, with flushed face and dry mouth, lasting from one to two hours, and followed by the sedative action of the drug, during which the pulse-rate and frequency of respiration, at first quickened, are distinctly lowered. It especially affects the motor tract of the spinal cord and the cerebral cortex, slightly depresses the heart, but paralyzes respiration. It is free from irritant qualities and may be used hypodermically. Its habitual use brings on muscular paralysis and delirium of violent character. It is coming into use as a hypnotic by alcoholics and nervous subjects, and will probably ere long be responsible for many deaths. As a mydriatic its reputation is doubtful, some observers claiming greater power for it in this respect than that of Atropine, while others say that mydriasis may follow its use but is not always produced by even large doses.

Antagonists and Incompatibles.

These are the same as for Belladonna (see *ante*, page 143). Liquor Potassæ though incompatible is frequently prescribed in combination with Hyoscyamus. All the fixed caustic alkalies decompose its alkaloid, as also those of the allied plants.

THERAPEUTICS.

Hyoscyamus is a valuable narcotic and is chiefly used as a hypnotic and anodyne when Opium is contraindicated, and for children. It is by far the best agent to use in acute mania with high motor excitement, obstinate insomnia and varied hallucinations. Chronic mania has been more benefited by it than by any other drug, and it is very efficient in insanity characterized by frequent delusions. In delirium tremens and the delirium of fevers it is an excellent hypnotic, and the monomania of hypochondriacs is alleviated and often cured by it. Whooping-cough, nervous coughs, and especially a dry, tickling night-cough, are greatly alleviated by full doses of Hyoscyamus. It is also efficient in colic of various forms, to palliate the trembling of paralysis agitans and mercurial tremor, and to relieve the pains and disordered coördination of locomotor ataxia. In constipation it is a good remedy, the extract being much employed in combination with other purgatives to render them more efficient and less drastic, but the quantity used is generally too small to be of any particular benefit. The tincture is an efficient remedy in irritability of the bladder from any cause.

HYOSCYAMINE may be used for the same purposes as Atropine, but being liable to considerable variation in purity and activity, it is not a popular agent with the profession.

HYOSCINE has been used in neuralgia, whooping-cough, insomnia from cerebral excitement, delirium tremens, asthma and enteralgia, also in ophthalmic practice as a mydriatic. The Hydrobromate is the salt in general use, in doses of gr. $\frac{1}{100}$ hypodermically, gr. $\frac{1}{60}$ to $\frac{1}{70}$ *per orem*. It efficiently, but temporarily, controls the shaking of paralysis agitans; and is highly useful at times in the treatment of the morphine-habit, especially for the extreme restlessness and insomnia resulting from the final withdrawal of that drug. In such cases, however, it must be used only for extreme cases, and should not be given habitually, as it excites a high degree of delirium in most subjects, at first, followed after about 2 hours by its secondary sedative influence. Excessively or carelessly employed, in such cases, it is liable to seriously derange the mental faculties, in the same manner as Atropine; and is probably responsible for many of the impaired intellects which emerge from the so-called "Bichloride of Gold Cures" for alcoholism.

ICHTHYOCOLLA, Isinglass,—is the swimming bladder of *Acipenser Huso*, and of other species of *Acipenser* (Sturgeon). It occurs in horny sheets, semi-transparent, iridescent, soluble in 24 parts of boiling water, forming on cooling a transparent jelly. It is the purest form of Gelatin known.

Preparation.

Emplastrum Ichthyocollæ, *Isinglass Plaster*, *Court Plaster*,—consists of Isinglass 10, Glycerin 1, Alcohol 40, Water and Tincture of Benzoin, spread on taffeta and allowed to dry.

Isinglass is slightly nutritious, but has no advantage over any other form of gelatin. It is used for clarifying liquids, and in solution as a test for tannin. The plaster is a common protective application.

IGNATIA, St. Ignatius' Bean (Unofficial),—is the seed of *Strychnos Ignatii*, a small tree of the nat. ord. Loganiaceæ, native in the Philippine Islands, and also called *Ignatia Amara*. The seed is about an inch long, ovate, irregularly angular, hard and horny, enclosing an irregular cavity containing an oblong embryo, inodorous, taste very bitter. It contains the alkaloids *Strychnine* and *Brucine*, about 1 per cent. of each, for a description of which see the title NUX VOMICA.

Tinctura Ignatiæ, *Tincture of Ignatia* (Unofficial),—strength 10 per cent. Dose, ♏ ij–x.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Ignatia closely resembles Nux Vomica in action, a poisonous dose producing the same exaltation of the spinal functions, with muscular twitching, tetanic spasms, and death by asphyxia through tetanic fixation of the respiratory muscles, but containing a greater quantity of Strychnine than the latter it is more powerful in the same dose. It especially exalts the susceptibility of the sensory nerves, and of the nerves of special sense, for a time, but an opposite condition soon succeeds, manifested by numbness and torpor with great mental depression. It causes a feeling of constriction about the throat and a sensation of intense anguish at the pit of the stomach. Its antagonists and incompatibles are the same as for Nux Vomica.

Ignatia is recommended for hysteria, to control the general hyperæsthesia, also for insomnia, clavus hystericus, mental excitement or depression, aphonia, diseased appetite, and convulsive crying or laughing. It will often remove the intercostal neuralgia of hysterical subjects, and the sensation as of a ball rising to the throat (globus hystericus). Cerebro-spinal irritability is diminished by small doses though excited by large ones, Ignatia being probably the most efficient controller of functional phenomena of the cerebro-spinal axis. In the convulsions of children from intestinal irritation without cerebral congestion, and in insomnia from nervous erethism, small doses of Ignatia are used with the happiest results. It is by many practitioners preferred to Nux Vomica as a stomachic tonic, and is useful in the treatment of dyspepsia, hypochondriasis and various nervous affections.

ILLICIUM, Star Anise,—is the fruit of *Illicium verum*, an Asiatic shrub of the nat. ord. Magnoliaceæ, and is formed by 8 boat-shaped carpels arranged in a star shaped whorl around a central axis which is the top of the stalk. Each carpel contains a single seed, flat, oval, glossy, and of a brownish-yellow color. It contains a *Volatile Oil* which is chemically and practically identical with the Oil of Anise. Another species, *Illicium anisatum* (*Illicium religiosum*), is very poisonous, causing vomiting, epileptiform convulsions, dilated pupils and cyanosed countenance. Its carpels are more woody, shrivelled and wrinkled, and end in a curved beak. Illicium is recognized officially as a source of the Oil of Anise, and has similar actions and uses to those of Anisum. (See *ante*, page 115.)

INULA, Elecampane,—is the root of *Inula Helenium*, a plant of the nat. ord. Compositæ, growing in Europe and N. America. It occurs in slices or sections, externally grayish-brown, internally white, fleshy and full of resin cells, of peculiar, aromatic odor, pungent and bitter taste. It contains a volatile oil, a resin, a crystalline substance named *Helenin*, C_6H_8O, and a peculiar principle resembling starch, *Inulin*, $C_6H_{10}O_5$, which is found in Arnica, Taraxacum and other plants. Having the same chemical composition as starch, Inulin differs from the latter in being colored yellow by iodine, and depositing from its solution in hot water as the solution cools. It is contained in Elecampane in large quantity, from 19 to 44 per cent., the latter in autumn. There are no official preparations, but a decoction (℥ss to Oj) may be given in doses of ℥j–ij. Dose of the powdered root, gr. xx–ʒj.

Inula is a gentle stimulant to the secretory organs, and is said to be expectorant, diaphoretic and diuretic. In large doses it causes nausea and vomiting. It was formerly supposed to be emmenagogue and was much used in amenorrhœa. It is now chiefly employed as a domestic remedy in chronic bronchitis and dyspepsia, and to promote the eruption in exanthematous fevers.

IODUM, Iodine, I,—is a non-metallic element, existing in sea-weed, sea-water, some fresh waters and fresh-water plants, also in sponge, oysters, eggs, cod-liver oil, rock salt and several ores. It occurs in bluish-black rhombic plates, of metallic lustre, peculiar odor, acrid taste, and neutral reaction, sparingly soluble in water (1 in 5000), readily so in ether, and in 10 of alcohol, also in a solution of potassium iodide or sodium chloride. It volatilizes slowly at ordinary temperatures, and produces a dark-blue color with gelatinized starch in a cold solution. Internally it is generally administered in the form of an Iodide or as the Compound Solution of Iodine. Dose, gr.ss–j.

Preparations of Iodine.

Tinctura Iodi, *Tincture of Iodine*,—strength 7 per cent. Dose, ♏j–v; but it is generally used as a local application, or for injection into cavities.

Liquor Iodi Compositus, *Compound Solution of Iodine, Lugol's Solution*,—has of Iodine 5, Potassium Iodide 10, in Distilled Water to 100. Dose, ♏j–x, well diluted.

Unguentum Iodi, *Ointment of Iodine*,—has of Iodine 4, Potassium Iodide 1, Water 2, Benzoinated Lard 93.

Iodized Phenol, *Carbolated Iodine* (Unofficial),—is a mixture of Iodine and crystallized Carbolic Acid in varying proportions, generally 1 of the former to 4 of the latter: for local use, especially in gynecology.

Iodides and their Preparations.

Ammonii Iodidum, *Ammonium Iodide*, NH_4I,—a deliquescent, granular, white salt; soluble in 1 of water and in 9 of alcohol at 59° F. Dose, gr. ij–x or more.

Potassii Iodidum, *Potassium Iodide*, KI,—a colorless, deliquescent, crystalline salt, of saline and bitter taste; soluble in 0.8 of water and in 18 of alcohol at 59° F. Dose, gr. v–ʒj.

Unguentum Potassii Iodidi, *Ointment of Potassium Iodide*,—has of the Iodide 12, Sodium Hyposulphite 1, Hot Water 10, Benzoinated Lard 77.

Sodii Iodidum, *Sodium Iodide*, NaI,—minute, deliquescent crystals; soluble in 0.6 of water and in 1.8 of alcohol. Dose, gr. v–ʒj.

Strontii Iodidum, *Strontium Iodide*, $SrI_2(H_2O)_6$,—colorless, hexagonal plates, of bitter, saline taste; very soluble in water and in alcohol. Dose, gr. v–xxx.

Iodoformum, *Iodoform* (*Formyl Iodide*), CHI_3,—small, lemon-yellow, lustrous crystals, of saffron-like and very penetrating odor; very slightly soluble in water, soluble in about 52 of alcohol, 12 of boiling alcohol, and in 5.2 of ether; very soluble in chloroform, benzin and fixed and volatile oils. Its solutions have neutral reaction. Dose, gr. j–v.

To remove its odor without forming a compound the best agents are Thymol (gtt. ij ad ℥j), Oil of Mirbane (gtt. vj ad gr. xv), Oil of Bitter Almonds, or Oil of Rose (gtt. j ad ʒj). Oil of Turpentine is particularly serviceable in removing the odor from the hands, or from spatulas, mortars, etc.

Unguentum Iodoformi, *Iodoform Ointment*,—Iodoform, finely pulverized, 10, Benzoinated Lard 90, thoroughly mixed by trituration.

Other Iodides and preparations thereof are—Argenti Iodidum, Arseni Iodidum, Liquor Arseni et Hydrargyri Iodidum, Hydrargyri Iodidum Rubrum, Hydrargyri Iodidum Flavum, Syrupus Ferri Iodidi, Pilulæ Ferri Iodidi, Plumbi Iodidum, Sulphuris Iodidum and Zinci Iodidum. As these preparations are allied in action and uses less to Iodine than to the other elements in their composition, they are described under other titles. (See *Argentum*, *Hydrargyrum*, etc.) Ethyl Iodide or Hydriodic Ether is described under Æther (see *ante*, page 86).

Preparation of Hydriodic Acid.

Syrupus Acidi Hydriodici, *Syrup of Hydriodic Acid*,—contains 1 per cent. of absolute Hydriodic Acid, HI. Dose, ʒj-iv, well diluted.

PHYSIOLOGICAL ACTION.

IODINE is irritant to the mucous membranes and to the skin. Applied to the latter it stains a deep yellowish-brown color and combines with the albumen of the tissue, causing considerable pain and subsequent exfoliation of the epidermis. Vesication may be quickly produced if the quantity used be large. Inhaled its vapor irritates the respiratory mucous membrane, producing sneezing, cough, dyspnœa, also pain in the chest and the frontal sinuses. In the gastro-intestinal canal it is equally irritant, but is gradually converted into the iodide or iodate of sodium, in which form or as an albuminate it is absorbed into the blood. Iodine decomposes organic molecules, and in the presence of phosphoretted or sulphuretted gases it acts like chlorine but more feebly, uniting with their hydrogen and thus breaking up those noxious compounds it is disinfectant and deodorant.

The IODIDES of Sodium,. Potassium, etc., are very diffusible and are as rapidly excreted; setting free nascent oxygen (Ozone) and Iodine at the points of elimination, they are remotely irritant to the mucous membranes, setting up violent coryza, with soreness of the throat, acute conjunctivitis, profuse mucous discharges, headache and irritation of the kidneys and the skin. Intravenous injections of these salts produce at first a rapid elevation of arterial pressure with acceleration of the cardiac rate; followed by slowing of the heart, and later on, lowered blood-pressure with increased heart rate. If used for any length of time they induce great waste and rapid elimination of waste products, causing anæmia, emaciation and mental depression; but these effects are credited chiefly to the metallic constituent, being most severe from the potassium salt. They combine with certain poisons in the system, particularly Lead, Mercury, and the products of the syphilitic disease, hastening their elimination. *Iodism* is the term applied to the general condition produced by these agents, and comprises the symptoms above noted together with frontal headache, ptyalism, a saline taste in the mouth, dysphagia, temporary impotence, and an acneform eruption on the face and limbs. Sometimes the eruption is furuncular or even purpuric. It is less apt to result from the use of the Strontium Iodide than from that of the others. The copious dilution of these preparations with water promotes their excretion, and to a great extent prevents the development of unpleasant results.

IODOFORM contains from 94 to 97 per cent. of Iodine and naturally resembles the latter in action. Locally its action is anæsthetic and powerfully antiseptic. It is one of the best agents to prevent decomposition and to destroy the germs of putrefaction and of disease, but must be carefully employed, as when used in quantity on an extensive raw surface it has often produced fatal results with symptoms of narcotic poisoning. The first sign of its dangerous absorption is increase of temperature, which may reach 104° or more, then headache, quick and feeble pulse, marked anxiety and restlessness, and suddenly collapse and death may supervene. The quantities which have produced fatal results from local absorption have varied from 525 to 4500 grains. In small doses internally it is considered to be a tonic and alterative, wasting does not occur, but the body weight increases and the general condition improves. In these respects its action markedly differs from that of Iodine or the Iodides. In medicinal doses internally administered for any length of time it may cause profuse salivation.

ETHYL IODIDE (see *ante*, pages 86 and 89) is used by inhalation to bring the system rapidly under the influence of Iodine. It is a good antispasmodic and general stimulant and a very slow anæsthetic.

Antagonists and Incompatibles.

Restorative agents and vaso-motor tonics, Quinine, Digitalis, etc., are therapeutically antagonistic. *Starch* is the antidote to free Iodine, but the stomach must be evacuated, as the Iodide of Starch is not inactive. The mineral acids, metallic salts, ammonia and vegetable alkaloids are incompatible with Iodine, and if the potassium salt be prescribed with Potassium Chlorate a poisonous compound will result. In chronic poisoning by the iodides a free salivary flow induced by chewing Pyrethrum root will hasten the elimination of the drug.

THERAPEUTICS OF IODINE.

The tincture or the compound solution are much employed locally as counterirritants and by injection into cavities as alterative applications, instances of which are their use in glandular tumors, hypertrophied tonsils, cervical and ovarian cysts, empyema, hydrocele, etc. In various skin diseases, as chloasma, lentigo, lupus, the tincture or a glycerite is well applied, and in many splenic and hepatic disorders of chronic type the ointment or tincture is a favorite counterirritant application. In sores, ulcers, and fissures, the Iodide of Starch or a mixture of Iodoform and Tannin, are strongly recommended, and the tincture is much used locally to promote absorption of the products of acute inflammations. In acute catarrh and hay-fever inhalations of Iodine-vapor, or that from Iodized Phenol are very serviceable, and in the vomiting of pregnancy 1- to 5-drop doses of the tincture every hour are often efficient. The compound solution well diluted is given thrice daily in typhoid fever with good results in many cases, and in malarial fevers the same preparation combined with Carbolic Acid has remarkably curative power. In strumous conditions Iodine internally is much more efficient than any of the Iodides.

THERAPEUTICS OF THE IODIDES.

POTASSIUM IODIDE is the most frequently used of the Iodides, and is the form in which Iodine is generally administered internally. It is usually administered in simple solution or in the compound infusion or syrup of Sarsaparilla. Though its mode of action has never been explained satisfactorily, it is known by clinical experience to counteract many pathological conditions, to promote the absorption of morbid products, and the elimination of several metallic poisons. It is almost of specific rank in tertiary syphilis and its results, as neuralgiæ, paralyses from gummata, ulcerations, syphiloma of the internal viscera, lupus, chronic rheumatism and sciatica, in all of which when of syphilitic origin this iodide in large doses (50 to 150 grains daily) to saturation of the system will speedily cause improvement. So in mercurial poisoning and other chronic metallic toxæmiæ, the best treatment is by rapid saturation with Potassium Iodide. The products left behind by pneumonia, pleurisy and pericarditis often yield to moderate doses (5 grains), which if used for a prolonged period seem to retard the changes of chronic nephritis. It is the best remedy for the early stage of hepatic cirrhosis, and acts as a most efficient expectorant in chronic bronchitis. Aneurisms are often cured by large doses (20 to 30 grains) of Potassium Iodide, the sac becoming solid by fibrinous deposit. In acute catarrh and hay-fever, it is useful with Arsenic, the Iodized Phenol being at the same time used locally in weak solution. In tonsillitis and simple sore throat a weak solution (gr. ij–v to the ℥) is a good gargle, and in large doses it is often efficient in spasmodic asthma induced by bronchial catarrh.

AMMONIUM IODIDE in grain dose repeated frequently is an excellent remedy in acute catarrh, hay-fever, duodenal catarrh and its accompanying jaundice, in chronic and capillary bronchitis, and in catarrhal pneumonia to prevent caseation of the products. In the first stage of hepatic cirrhosis and in chronic malarial poisoning it is equally efficient administered in conjunction with Arsenic. Being somewhat more irritating than the other iodides it is usually given in smaller quantity, but being less stable it is more energetic in action.

SODIUM IODIDE may be used instead of the potassium salt, in all affections in which the latter is indicated: but requires to be administered in somewhat larger doses, being less active and less toxic. STRONTIUM IODIDE is still less liable to produce eruptions, and has been used with benefit in scrofulous, rheumatoid and cardiac disorders.

HYDRIODIC ACID is used as a substitute for Iodine and the Iodides. As an alterative it is believed by some to possess all the powers of Iodine while it is much less offensive to the taste and the stomach. It has been used with benefit in asthma and bronchitis. The acid itself is not now official, as it is liable to change by the development of free Iodine.

IODOFORM is chiefly employed in local diseases as an antiseptic, anæsthetic and alterative agent. It may be dusted in fine powder over a wound or sore, or used in ethereal solution to saturate gauze or absorbent cotton. It is particularly useful as an application to sloughing and phagedenic ulcers, gunshot wounds, chancroids, fistulæ, sinuses and painful affections of the rectum or uterus. Internally it may be used as a general tonic and alterative in syphilis and other cachexiæ, also for neuralgia, and is frequently prescribed with Iron. Triturated with Tannin it forms a useful application to the cervix uteri in erosions and ulcerations thereof, or an Iodo-tannin may be prepared by saturating the Tincture of Iodine with Tannic Acid, and applied on a cotton tent to the uterine mucous membrane in many chronic affections of that organ. Tuberculosis is successfully treated by Iodoform, which certainly does check the activity of the bacillus of that disease. Diabetes has been apparently cured by Iodoform, and syphilis may be combated successfully thereby in lieu of Potassium Iodide.

Unofficial Substitutes for Iodoform.

Aristol, *Dithymol Iodide*,—is a combination of Iodine and Thymol, containing nearly 46 per cent. of the former, and is prepared by adding an alkaline solution of Thymol to a solution of Potassium Iodide and Iodine. It occurs as an amorphous, odorless, unstable, non-toxic powder, of a brown-red or fawn color, insoluble in water or glycerin, sparingly soluble in alcohol, freely so in ether, chloroform and fatty oils. As its Iodine leaves it readily, no heat should be used in dispensing it, and it should not be mixed with alkalies, metallic oxides, or starch. It is used locally as a substitute for Iodoform.

Aristol is highly praised by those who have used it in the local treatment of ulcers, wounds, and other breaches of the tissues; in which it is considered nearly, if not quite, as efficient as Iodoform, with the great advantage of being odorless. Excellent results have been obtained with it in the treatment of indolent soft ulcers, lupus, psoriasis, syphilitic ulcerative processes, eczema, severe burns, affections of the ear, nose and pharynx, as well as in the various cases in gynecological and dermatological practice in which Iodoform has hitherto stood supreme. Its prolonged use may give rise to chronic iodine poisoning.

Aristol is best applied in powder, in solutions in Oil or Ether (5 to 10 per cent.), or as ointments with a base of Lanolin or Vaseline (5 to 10 per cent.). A useful application is a liniment, prepared by dissolving 5 grains of Aristol in ʒij of a mixture of equal parts of Ether and Alcohol, then incorporating ℥j of soft Soap therewith.

Europhen, *Isobutyl-orthocresol Iodide*,—is produced by the action of Iodine upon Isobutyl-orthocresol in a solution of Potassium Iodide, and contains about 27 per cent. of Iodine, which it gives up to metallic oxides and mercury salts, and when brought into contact with aqueous liquids. It occurs as a very fine, amorphous, yellow powder, of faint, aromatic odor like that of saffron; insoluble in water and in glycerin, soluble in alcohol, ether, chloroform and fatty oils; readily decomposed by heat and by starch, slowly by light. It is five times lighter and more bulky than Iodoform, and is used as a substitute therefor in all local applications where a dry antiseptic is required. Like Aristol, it should be kept in a dry place, and protected from the action of light.

Europhen is a recent addition to the list of substitutes for Iodoform, and is perhaps the most highly vaunted of them all. Compared with the latter substance, its freedom from unpleasant odor, its greater bulk and lightness, and its powerful antiseptic and bactericidal qualities, make it an ideal application to sores and wounds, as also for the many protective requirements of minor surgery. Its virtues are probably due to the readiness with which it liberates free, nascent Iodine, when in contact with aqueous liquids; being fully equal in this respect to Iodoform. Used externally, it is dusted on in powder, or applied as a 5 to 10 per cent. ointment with Lanolin as a base. It must not be combined with metallic oxides or mercurials, nor with zinc starch paste. For hypodermic use a 3 to 10 per cent. solution in Olive Oil is employed. A mixture of Europhen and Aristol, equal parts of each, is highly recommended for adhesiveness.

Bismuthi Subiodidum, *Bismuth Subiodide*, BiOI,—is a heavy, amorphous, brick-red powder, insoluble in any reagent without decomposition. (See *ante*, page 148.)

Bismuthi Subgallas, *Bismuth Subgallate, Dermatol*,—is a very fine saffron-yellow, odorless powder. (See *ante*, page 148.)

These are two of the very best among the agents proposed as substitutes for Iodoform in local applications. They are non-irritant, powerfully bactericidal, and entirely odorless. In the author's experience the Subiodide is exceedingly efficient in stimulating the growth of granulations in a large wound, such as that often necessary in the surgical treatment of fistula in ano. They are described under BISMUTH (*ante*, page 149).

Iodol, *Tetra-iodo-pyrrol*,—is obtained by treating *Pyrrol*, (a coal-tar product), with a solution of Iodine in Potassium Iodide, usually known as Potassium Iodo-iodide solution. It occurs in very long, minute, delicate, prismatic crystals, of a yellowish tint, sparingly soluble in water, but readily in alcohol. When even slight decomposition is going on the crystals take on a brown tinge, due to the free iodine. Its odor is very slight, it being practically odorless when pure; and, unlike Iodoform, it has no toxic properties when undecomposed. It contains about 89 per cent. of Iodine. Dose, gr. ss–v, in tablet.

Though insoluble practically in water, Iodol dissolves readily in the gastric juice, and is rapidly absorbed and as quickly diffused throughout the system. It has the same general action as Iodoform, except that it is devoid of toxic power.

Iodol is a very close rival to Iodoform, and is used in almost every instance where the latter agent is applicable (Squibb). It should replace Iodoform largely as a topical application, on account of its freedom from unpleasant odor. Internally it is highly esteemed as a remedy in chronic gastric catarrh, intestinal catarrh, and in ulceration of the gastro-intestinal mucous membrane. It has been found to be highly useful in bronchitis, bronchial catarrh, and in various respiratory neuroses; and has seemed to render good service in the treatment of tuberculosis and syphilis. In eczema of the ear Iodol has recently proved very efficient. In moist confluent eczema of the pinna, extending within the auditory canal, the powder should be blown into the canal and upon the surrounding parts, after the surfaces have been thoroughly cleansed. In the dry, external form, it is best applied as an ointment with Lanolin. The inflammation disappears generally within two weeks, but irrigation should be kept up for a short time afterwards in order to complete the treatment. (Chatellier.)

IPECACUANHA, Ipecac,—is the root of *Cephaëlis Ipecacuanha*, a small shrubby plant of the nat. ord. Rubiaceæ, growing in Brazil. The root is of the thickness of a small quill and about 4 inches long, of dull gray-brown color, contorted and finely wrinkled, internally white, tough and ligneous; odor slight but nauseous, taste acrid, bitter and nauseating. It contains starch, gum, a trace of volatile oil, a crystalline alkaloid, *Emetine*, $C_{20}H_{30}NO_5$, and a glucoside named *Ipecacuanhic Acid*. Dose of the powdered root, as an expectorant gr. ss–ij, as an emetic gr. xv–xxx.

Preparations.

Extractum Ipecacuanhæ Fluidum, *Fluid Extract of Ipecac,*—Dose, ♏ j-v.

Syrupus Ipecacuanhæ, *Syrup of Ipecac,*—strength 7 per cent. Dose, ʒ j-iv.

Vinum Ipecacuanhæ, *Wine of Ipecac,*—strength 10 per cent. Dose, ♏ j-ʒ j.

Pulvis Ipecacuanhæ et Opii, *Powder of Ipecac and Opium, Dover's Powder* (*Pulvis Doveri*),—has of Ipecac 10, Powdered Opium 10, Sugar of Milk 80, triturated together to a fine powder. Dose, gr. ij–xv or xx.

Tinctura Ipecacuanhæ et Opii, *Tincture of Ipecac and Opium,*—has of Tincture of Deodorized Opium 100 evaporated to 80, Fluid Extract of Ipecac 10, Diluted Alcohol to 100. Is a fluid representative of Dover's powder. Dose, ♏ ij–xx or xxx.

Trochisci Ipecacuanhæ, *Troches of Ipecac,*—each troche contains of Ipecac about gr. $\frac{1}{3}$. Dose, j–iij.

Trochisci Morphinæ et Ipecacuanhæ, *Troches of Morphine and Ipecac,*—each troche contains about gr. $\frac{1}{40}$ of Morphine Sulphate, about gr. $\frac{1}{12}$ of Ipecac, with Oil of Gaultheria, Sugar, etc. Dose, j–iij.

Emetina, *Emetine* (Unofficial),—a crystalline alkaloid, white, becoming yellow, odorless, bitter, nearly insoluble in water, but forming with acids salts which are readily soluble. Is powerfully poisonous in large doses. Dose as an expectorant, gr. $\frac{1}{120}$–$\frac{1}{40}$; as an emetic, gr. $\frac{1}{8}$–$\frac{1}{4}$.

PHYSIOLOGICAL ACTION.

IPECAC is nauseant, emetic, expectorant, cholagogue, diaphoretic, hemostatic, sternutatory, and counterirritant. Applied to the skin it produces pustulation, and used as snuff it excites violent sneezing and reflex mucous secretion, in some persons the smallest inhalation of the dust exciting an asthmatic paroxysm. Internally, small doses (gr. $\frac{1}{8}$–$\frac{1}{4}$) act as a stomachic tonic and increase the gastric secretions; larger doses (gr. v–xx) are nauseant and emetic in from 20 minutes to half an hour, but the emesis produced is not violent nor is it followed by much depression. If these doses are repeated a tolerance of the stomach to the drug becomes established and a cathartic action is produced, the stools having a peculiar bilious character. The circulation is only slightly affected by Ipecac, but it relaxes the skin and increases the broncho-pulmonary mucus, being diaphoretic and expectorant. In large doses it is decidedly irritant to the intestinal canal, but here also it is capable of the same tolerance as in the stomach. In poisonous doses it has frequently produced hemoptysis and other hemorrhages.

EMETINE, the active principle, causes death in animals by cardiac paralysis, and the autopsies show evidences of gastro-intestinal irritation and hyperæmic lungs with patches of hepatization.

Antagonists and Incompatibles.

Narcotics generally antagonize the emetic action, so also do Bismuth, Carbolic and Hydrocyanic Acids. The salts of Lead and Mercury, Vegetable Acids and astringent infusions are incompatible with Ipecac.

THERAPEUTICS.

Ipecac is much used as an emetic, being safe, efficient and non-depressant, though slow of action. It is the best agent of the kind to relieve the stomach in acute indigestion and bilious sick-headache, and an ipecac-vomit is frequently very serviceable at the commencement of eruptive, continued and periodical fevers. The syrup is a favorite domestic emetic to cut short an attack of spasmodic laryngitis, and it may be used beneficially in membranous croup and capillary bronchitis.

Dysentery is a disease in which large doses of Ipecac (gr. xx every 4 hours) are used with great success, especially in the epidemic form, and in the summer dysentery of teething children. Tolerance must be established to produce its curative action. In small doses (♏j of the wine) frequently repeated, it will relieve many kinds of vomiting, especially those of nervous origin, perhaps through a sedative action on the pneumogastric. As an antihemorrhagic, it has been efficiently employed in post-partum hemorrhage, menorrhagia, epistaxis, hemoptysis, etc., and it is considered very useful in night coughs, acute catarrh and bronchitis, spasmodic asthma and hay fever. In most of these affections slightly nauseating doses must be used.

IRIS, Blue Flag,—is the rhizome and roots of *Iris versicolor*, an indigenous plant of the nat. ord. Irideæ, growing in moist meadows and on the borders of swamps, having large blue flowers and a horizontal rhizome, 2 to 4 inches long, with long rootlets, slight odor, but an acrid, nauseous taste. It contains tannin, sugar, starch, gum, an acrid resin, fixed oils and traces of an alkaloid. Dose of the powdered root, gr. v-xx.

Preparations.

Extractum Iridis, *Extract of Iris.*—Dose, gr. j-v.
Extractum Iridis Fluidum, *Fluid Extract of Iris.*—Dose, ♏v-ʒj.
Iridin or **Irisin** (Unofficial),—is a so-called resinoid found in the shops, of undetermined composition, but probably an oleoresin precipitated by water from an alcoholic preparation. Dose, gr. j-v.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Iris when fresh is actively purgative, emetic and diuretic, producing severe nausea and prostration. Iridin has been the subject of experimentation upon dogs, and is shown to be a powerful hepatic stimulant with considerable influence on the intestinal glands, being more purgative than Euonymin and less irritant than Podophyllin. In very small doses it causes obstinate constipation by producing rectal inactivity.

Iris is very serviceable in duodenal catarrh with obstruction of the bile-ducts and consequent jaundice, also in malarial poisoning, bilious remittents, and jaundice of malarial origin. It is used in many hepatic and intestinal disorders as a cholagogue and purgative of mild but efficient action, also as a diuretic in dropsies. In small doses (♏j of a tincture) it is strongly recommended in a peculiar blinding headache in the right supra-orbital region with nausea or vomiting, supposed to be of hepatic origin.

JALAPA, Jalap,—is the tuberous root of *Ipomœa Jalapa*, a Mexican plant of the nat. ord. Convolvulaceæ. It is large, turnip-shaped, externally dark-brown and wrinkled, internally grayish-brown with numerous concentric circles composed of small resin-cells, odor slight, taste sweetish and acrid. It contains 15 to 20 per cent. of the official Resin, which is composed of two resins, *Jalapin*, soft, soluble in ether, and *Convolvulin*, $C_{31}H_{50}O_{16}$, which is hard, insoluble in ether, and the most active of the two.

Preparations.

Extractum Jalapæ, *Extract of Jalap.*—Dose, gr. ij–x. Is an ingredient of Pil. Catharticæ Co., and Pil. Catharticæ Vegetabiles.

Resina Jalapæ, *Resin of Jalap,*—prepared from a tincture by precipitation by water. Is insoluble in water, soluble in alcohol. Dose, gr. ij–x.

Pulvis Jalapæ Compositus, *Compound Powder of Jalap,* (*Pulvis Purgans*),—has of Jalap 35, Potassium Bitartrate 65, rubbed together until thoroughly mixed. Dose, gr. x–ʒj.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

JALAP is an active cathartic, producing copious and watery stools, with considerable tormina and tenesmus, also sometimes nausea. It does not produce hemorrhoids, but does increase the secretions of the intestinal canal and the flow of bile. Its action is not due to any one of the contained principles, but all the active constituents are found in the resin. Compared with other agents of the same class its action most resembles that of Scammony. It is more drastic than Senna and less irritant than Gamboge, but in overdoses may produce dangerous hypercatharsis.

CONVOLVULIN in sufficient dose is an active irritant poison, producing gastro-enteritis and narcotism. Its action as a purgative seems to be wholly local, as from its intravenous injection no catharsis results, yet it exerts little if any irritant action on the conjunctiva, nasal mucous membrane or skin. It is not eliminated in the urine or the fæces, and is therefore probably destroyed in the system by oxidation.

In olden bowel-moving times Jalap and Calomel were used together in doses of gr. x each (" ten and ten "), as a routine purgative prescription. Less ponderous doses are now considered equally efficient, and one grain of each agent with the same quantity of Extract of Hyoscyamus as a corrective may be used with advantage at the onset of fevers and inflammations. As the compound powder it is much employed to produce free watery evacuations in ascites and anasarca. Being nearly tasteless it is a useful cathartic for children, and may be administered in Syrup of Rhubarb (gr. ij–v in ℥ss). As a vermifuge it is efficient as an adjunct to more powerful agents, and is employed with Calomel and Santonin for the expulsion of lumbrici. Jalap is contraindicated in all inflammatory conditions of the intestinal mucous membrane, but in proper doses it is one of the most manageable and efficient cathartics.

JAMBUL, Jamun (Unofficial),—the seeds and bark of the *Eugenia Jambolana*, a native tree of India, has a very varied history of successes and failures in the treatment of diabetes. The British Medical Association has directed its Committee on Therapeutics to investigate thoroughly the claims made for and against this agent, so that some reliable information may be expected concerning this very important question. One writer contends that any efficient preparation should be made from the fresh seeds, discarding the pericarps, and avoiding the application of heat; also that a weak alcoholic menstruum exhausts the drug and gives a stable preparation.

Late reports, from observers abroad and in this country, show that favorable results are obtained with Jambul in many cases of diabetes, even after the unsuccessful use of all the usual remedies. In two severe cases, in which 7 and 3 per cent. respectively of glucose was excreted, the urine was brought back to normal and kept there for two years, by the use of this remedy. It should be given with or after meals, in water or wine sweetened with a small quantity of saccharin, and accompanied by general treatment.

JUGLANS, Butternut,—is the bark of the root, collected in autumn, of *Juglans cinerea*, the Butternut or White Walnut, an indigenous forest tree of the nat. ord. Juglandaceæ. It occurs in flat or curved pieces, the outer surface smooth, dark-brown, mottled and nearly free from corky remnants of the outer bark, odor feeble, taste bitter and acrid. It contains an orange-yellow, crystalline and acrid substance named *Juglandic Acid* or *Nucin*, resembling Chrysophanic Acid, also some resin, volatile acid, etc., but neither tannin nor any alkaloid.

Extractum Juglandis, *Extract of Juglans.*—Dose, gr. v–xx or more.

Juglans is a mild cathartic operating without the production of pain or irritant symptoms. It is never used in substance, but the extract is a good laxative in doses of gr. v–x, and a purgative in larger doses. It has considerable reputation in dysentery and chronic constipation.

JUNIPERUS, Juniper,—the source of the official Oleum Juniperi, is the fruit of *Juniperus communis*, an evergreen shrub of the nat. ord. Coniferæ, growing in Europe and N. America. The fruit or berry is dark-purple with a bluish-gray bloom, having a three-rayed furrow at the apex, internally pulpy, containing 3 triangular, bony seeds. It contains a *Volatile Oil,* which consists of terpenes and camphors in complex combination, also a non-crystallizable principle named *Juniperin,* and grape sugar, resin, formic, acetic and malic acids, etc. The Oil, a Spirit, and a Compound Spirit are official.

Preparations.

Oleum Juniperi, *Oil of Juniper,*—is the volatile oil, a colorless or faintly greenish-yellow liquid, sp. gr. 0.850 to 0.890; of terebinthinate and sweetish taste, and the odor of juniper; soluble in 4 times its vol. of alcohol, and in an equal vol. of carbon disulphide. Dose, ♏v-xv.

Spiritus Juniperi, *Spirit of Juniper,*—has of the Oil 5 in Alcohol 95. Dose, ʒj–iv or more, according to the quantity of alcohol desired.

Spiritus Juniperi Compositus, *Compound Spirit of Juniper,*—has of the Oil 8, Oil of Caraway 1, Oil of Fennel 1, Alcohol 1400, Water to 2000. It approximates closely to a good grade of *Gin.* (See *ante*, page 94). Dose, ʒj–iv, or more, according to the quantity of alcohol desired.

Oleum Cadinum, *Oil of Cade* (*Empyreumatic Oil of Juniper*),—is a product of the dry distillation of the wood of *Juniperus Oxycedrus.* It is a tar-like substance, of uncertain composition and purity: a dark-brown, clear, thick liquid, of tarry odor and a somewhat bitter, burning taste; insoluble in water, partially soluble in alcohol, completely so in ether, chloroform or carbon disulphide. Used locally as a stimulant in psoriasis and chronic eczema.

Infusum Juniperi, *Infusion of Juniper* (Unofficial),—has of Juniper Berries ℥j in Oj of boiling water. Dose, ℥j–ij.

Juniper is a stomachic tonic, diaphoretic, diuretic and aphrodisiac. The oil is the active principle, and is readily diffused, exciting increased cardiac action, stimulating the renal functions and the action of the skin, and causing a subjective sense of heat throughout the system. It is eliminated chiefly by the kidneys, and may set up renal irritation, in large doses producing strangury, priapism, hematuria, suppression of the urine, and uræmic convulsions. It imparts a violet odor to the urine, and will produce diuresis when inhaled.

The Oil of Juniper is used to flavor gin and to impart the diuretic power popularly ascribed to that liquor. The medicinal use of the juniper preparations (spirit and compound spirit) is restricted to their employment as vehicles for less irritant diuretics. The oil acts therapeutically like the Oil of Turpentine, and may be used in chronic pyelitis and cystitis, prostatorrhœa, gleet, etc., but it is contraindicated in all cases where acute inflammation of the kidneys exists.

OIL OF CADE is used locally in chronic skin diseases as a stimulant application. It is too active for acute eruptions, but has been used with benefit in chronic eczema and psoriasis. The Oil of Tar (see PIX) is equally efficient for all the purposes to which the Oil of Cade has been applied.

KAMALA, Rottlera,—the glands and hairs from the capsules of *Mallotus philippinensis*, or *Rottlera tinctoria*, a small tree of the nat. ord. Euphorbiaceæ, growing in Abyssinia, Arabia, India, China, etc. It occurs as a granular, mobile, brick-red powder, inodorous and nearly tasteless, partly soluble in alcohol and ether. It contains several resins, one of which is named *Rottlerin*, $C_{11}H_{10}O_3$, also tannin, starch, gum, red coloring matter, etc. There are no official preparations. Dose, ʒss–iij.

Kamala is anthelmintic and purgative, sometimes causing nausea and colic, seldom vomiting. It is used as a tæniafuge, and to expel lumbrici and ascarides vermiculares. One or two drachms are given suspended in water, mucilage or syrup, and repeated in 4 hours if necessary. A tincture (℥vj in xvj of alcohol) may be used in doses of ʒj–℥ss. In India it is used locally in scabies and other skin affections and has been found of especial service in herpetic ringworm. As a remedy against tapeworm it is perhaps next after Male-fern in efficiency and requires no preparatory treatment.

KAVA-KAVA, Ava-Kava (Unofficial),—the root of *Piper methysticum*, a shrub of the nat. ord. Piperaceæ, growing in South America and the South Sea Islands. The root is large, weighing from 2 to 20 pounds, fibrous, light and spongy, and contains a crystalline principle, *Kavahin* or *Methysticin*, which is analogous to Piperin, an acrid, greenish-yellow resin, *Kawin*, which is probably the active principle, also a Volatile Oil. Dose, ʒss–j, macerated in water, or the same quantity of a fluid extract.

Kava is intoxicant, diuretic and motor-depressant. A beverage is prepared in the Sandwich Islands by chewing the root and then infusing it in water or cocoanut milk, which produces a drowsy intoxication with pleasant dreams often of erotic character, and followed by severe headache. A moderate dose is tonic and stimulant, lessening the sense of fatigue and sharpening the mental facilities. It is highly recommended in gonorrhœa and gout, also in chronic gleet and obstinate cystitis.

KINO,—is the inspissated juice of *Pterocarpus Marsupium*, a tall tree of the nat. ord. Leguminosæ, growing in India. It occurs in angular, brown-red pieces, shining and brittle, inodorous, taste astringent and sweetish, soluble in alcohol. It contains 75 per cent. of a variety of tannin named *Kino-tannic Acid*, $C_{18}H_{18}O_8$, which gives a greenish precipitate with persalts of iron, also a crystalline, neutral substance, *Kinoin*, $C_{14}H_{12}O_6$, and *Kino-red*, formed from Kino-tannic Acid by oxidation. besides gum, pectin, etc. There are several other varieties of Kino in the market, brought from S. America, Africa, Australia, etc., which are products of other trees than the official one.

Tinctura Kino, *Tincture of Kino*,—strength 10 per cent. Dose, ♏ x–ʒ ij.

Pulvis Kino Compositus (Unofficial).—Kino 15, Opium 1, Cinnamon 4 (has of Opium 1 in 20). Dose, gr. v–xx.

The action of Kino is the same as that of Tannic Acid, though less powerful (see *ante*, page 81), and it may be used for the same purposes, both internally and locally. It is chiefly employed as an astringent gargle and as a constituent of diarrhœa-mixtures. The tincture, in drachm doses, is one of the most efficient means of combating the atonic diarrhœa which results from disuse of opium or morphine.

KRAMERIA, Rhatany,—is the root of *Krameria triandra* and *Krameria Ixina*, shrubs of the nat. order Polygaleæ, growing in S. America, the first-named in Peru and the latter in New Granada. It is about an inch thick, branched below, more or less knotty, covered with a brownish bark which is very astringent; and contains 20 to 45 per cent. of *Rhatania-tannic Acid*, $C_{54}H_{24}O_{21}$, and *Rhatanine*, $C_{10}H_{13}NO_3$, an alkaloid,—also, wax, gum, etc.

Preparations.

Extractum Krameriæ, *Extract of Krameria*,—aqueous. Dose, gr. v–x.

Extractum Krameriæ Fluidum, *Fluid Extract of Krameria*.—Dose, ♏ v–ʒ ss.

Tinctura Krameriæ, *Tincture of Krameria*,—20 per cent. Dose, ♏ v–ʒ j.

Syrupus Krameriæ, *Syrup of Krameria*,—Fluid Extract 45, Syrup 55. Dose, ʒ ij–℥ ss.

Trochisci Krameriæ, *Troches of Krameria*,—each troche contains gr. j of the extract, with Tragacanth, Sugar and Orange-Flower Water.

Krameria possesses the same astringent qualities as Tannic Acid (see *ante*, page 81), and may be employed for the same purposes, except as an antidote to Antimony. It has long had a high reputation as an injection for fissure of the anus, as a local application to spongy gums, and as a tonic for debilitated subjects.

KUMYSS, Koomiss (Unofficial),—is an effervescing fermented liquor originally prepared by the Tartars from mare's milk, but now imitated with cow's milk by adding sugar of milk, fermenting in open tanks, skimming off the casein and butter, then bottling during active fermentation. Its successful preparation depends on its undergoing slow fermentation in a cold room, at 50° F. or less. If the temperature be higher, the fermentation will be of the acetous variety, and will result in sour milk with heavy curd, feeble effervescence and repulsive taste.

Wolff's Formula, for its preparation in small quantity, is as follows:—Dissolve ℥ss (a tablespoonful) of grape sugar in ℥iv of water. Dissolve gr. xx (a teaspoonful) of Fleischmann's compressed yeast or well washed and pressed out brewer's yeast in ℥ij of cow's milk. Mix the two solutions in a quart champagne bottle, and fill to within two inches of the top with good cow's milk. Cork well, secure the cork with wire, keep it in a cellar or ice chest, maintaining a temperature of 50° F. or less, and agitate twice daily. In three or four days it is ready for use, but should not be kept longer than four or five days. Draw it with a champagne tap.

Kumysgen is a powder containing the elements necessary for the preparation of Kumyss, for which a special bottle and tap are also furnished by the manufacturers. It is a very convenient manner of making this preparation, and the product tastes just as well as that made in the ordinary way. Whether it acts as well therapeutically remains to be ascertained.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The taste of Kumyss is acidulous and peculiar. In large quantity it takes the place of food, each quart equalling four ounces of solids. It is said to be a powerful diuretic, especially in cold weather, and in warm weather to produce free diaphoresis. It is stimulating and tonic, increases the body nutrition and produces considerable somnolence. The stomach is very tolerant of it, and retains it when any other food will be rejected. It is easily assimilated and very nutritious.

Kumyss is an invaluable article of diet in many wasting diseases, especially phthisis. It is also of great benefit in dyspepsia, the diarrhœa of children, convalescence from acute maladies, chronic affections of the kidneys, chronic bronchitis, and other cachexiæ. In cases of feeble digestive power ℥j every hour is sufficient, but as its digestion and assimilation increase it may be given almost *ad libitum*, and when used with other food a half-pint may be taken after each meal. Each quart is estimated to contain four ounces of solid food, besides from 1 to 3 per cent. of alcohol.

Kéfir is the name of a fermented drink prepared from the milk of a cow or mare by the addition of a mushroom-like ferment found near the snow-line in the Caucasian Mountains. It is used by the natives of the Asiatic plains as a remedy for struma, anæmia, lung and stomach diseases. Kéfir is richer in albumen than Kumyss, is less alcoholic and less acid.

The following table of analysis shows the average composition of Milk, Kumyss and Kéfir:—

	Cow's milk.	Kumyss.	Kéfir.
Albumen, ...	48	11.2	38
Butter, ...	38	20.5	20
Sugar of milk, ...	41	22.	20
Lactic acid, ...	—	11.5	9
Alcohol, ...	—	16.5	8
Water and salts, ...	873	918.3	905

LACTUCARIUM, Lettuce,—is the concrete milk-juice of *Lactuca virosa*, or Acrid Lettuce, a biennial European plant, of the nat. order Compositæ. It occurs in sections of cakes or irregular pieces showing the form of the vessel in which it hardened, externally reddish-brown, internally white or yellowish and of waxy lustre, odor heavy and narcotic, taste bitter, partly soluble in alcohol and in ether, and yielding a turbid mixture when triturated with water. Lactucarium is a mixture of several substances, the most important being *Lactucerin*, 42 per cent., a crystalline, tasteless body, resembling caoutchouc, insoluble in water and probably inert; *Lactucin*, 0.3 per cent., a neutral principle, crystallizing in pearly scales, insoluble in cold water, persistently bitter; *Lactucic Acid*, bitter, amorphous, but crystallizes after long standing.

Preparations.

Tinctura Lactucarii, *Tincture of Lactucarium*,—50 per cent. Dose, ♏x–ʒij, according to the activity of the drug.

Syrupus Lactucarii, *Syrup of Lactucarium*,—has of the Tincture 10 per cent. Dose, ʒj–℥j.

Lactucarium is feebly hypnotic, somewhat sedative and diuretic. It is supposed to act similarly to Opium, but very feebly and without depressing after-symptoms. Its preparations are very uncertain in activity, and are chiefly used as placebos, to allay cough and quiet nervous irritability. The syrup is a good vehicle for expectorants and antispasmodics.

LAPPA, Burdock,—is the root of *Arctium Lappa*, and of some other species of *Arctium*, the common Burdock, a coarse-looking biennial weed of the nat. ord. Compositæ, found in waste places and along roadsides in Europe, Asia and N. America. Three varieties are recognized, formerly known as *Lappa major*, *L. tomentosa*, and *L. minor*, of which the first-named is most frequently met with in this country. The root, about a foot long, an inch thick, has a feeble odor and a mucilaginous, bitterish taste, and contains a bitter principle, traces of a volatile oil, also inulin, resin, tannin, mucilage, sugar, etc.

Extractum Lappæ Fluidum, *Fluid Extract of Lappa*,—made with diluted alcohol. Dose, ʒj–ij.

Dr. Squibb recommended a Tincture of the seed; lb. j of ground seed to gall. j of whiskey, allowed to stand for two weeks before decanting, and used in doses of ʒij–iij before meals.

Lappa promotes all the secretions and is considered aperient, diuretic and diaphoretic, without irritating qualities. In decoction it has been a popular domestic remedy for many morbid conditions, especially rheumatism, gout, pulmonary catarrhs, and chronic cutaneous affections. By several practitioners it is praised as an alterative in constitutional diseases, as syphilis and scrofula, also as an external application to swellings, hemorrhoids and chronic sores. A tincture of the seed has proved remarkably efficient as a stomachic tonic and has cured several cases of psoriasis inveterata. (See Squibb's *Ephemeris*, vol. i, page 116.)

LAVANDULA, Lavender,—the source of the official Oil of Lavender Flowers, is the fresh flowers of *Lavandula officinalis*, a small European shrub of the nat. ord. Labiatæ, largely cultivated in England. They have a bluish-gray tubular calyx, a violet-blue corolla, a fragrant odor, and an aromatic, camphoraceous taste; and contain resin and tannin, also a *Volatile Oil.*

Official Preparations.

Oleum Lavandulæ Florum, *Oil of Lavender Flowers,*—is a volatile oil distilled from fresh Lavender, and having the fragrant odor of the flowers. It is soluble in alcohol in all proportions, also in 3 times its volume of a mixture of alcohol 3 and water 1, also in glacial acetic acid. Sp. gr. 0.885 to 0.897 at 59° F. Dose, ♏j–v.

Spiritus Lavandulæ, *Spirit of Lavender,*—has of the Oil 5, in Deodorized Alcohol 95. A perfume and flavoring. Dose, ʒss–j.

Tinctura Lavandulæ Composita, *Compound Tincture of Lavender,*—an aromatic stimulant, composed of the Oil 8, Oil of Rosemary 2, Cassia Cinnamon 20, Cloves 5, Nutmeg 10, Red Saunders 10, Alcohol 700, Water 250, Diluted Alcohol to 1000. Is a constituent of Liquor Potassii Arsenitis. Dose, ʒss–ij.

Lavender is aromatic, stimulant and carminative, but is rarely used alone as a medicine. It is an agreeable flavoring and perfume, in the form of the official spirit, which is sold under the name of "*Lavender-water*," after the addition of Oil of Bergamot and Essence of Ambergris. The compound tincture, formerly called the compound Spirit of Lavender, is a very agreeable compound of spices, and is much used as a remedy for gastralgia, nausea, flatulence, etc., and as an adjuvant or corrigent of other medicines.

LEPTANDRA, Culver's Root,—is the rhizome and rootlets of *Veronica virginica*, an indigenous perennial plant of the nat. ord. Scrofularineæ. The rhizome is horizontal, about 5 inches long and ¼ inch thick, bent and branched, with thin, wrinkled rootlets, inodorous, taste bitter and feel acrid. It contains a glucoside named *Leptandrin*, which is probably the active principle, also Saponin, resin, tannin, etc. The Leptandrin of the shops is an impure alcoholic extract.

Extractum Leptandræ, *Extract of Leptandra,*—is a constituent of Pil. Catharticæ Veg. Dose, gr. j–iij.

Extractum Leptandræ Fluidum, *Fluid Extract of Leptandra.*—Dose, ♏xx–ʒj.

Leptandra is tonic, laxative, and like other resin-bearing purgatives is decidedly cholagogue. The recent root is a violent cathartic, but in the dried state it is less active. It is indicated in duodenal indigestion and chronic constipation with insufficiency of the biliary and intestinal secretions.

LICOPERDON GIGANTEUM, Puff-Ball (Unofficial),—is a common fungus of the nat. ord. Trichogastres, found in hilly and wooded districts. The dust, which consists of the capillitium and spores, is a valuable hemostatic, and dusted over bleeding surfaces acts promptly in arresting hemorrhage. It has been proposed as a surgical dressing, but while useful in emergencies where other agents are unattainable, the fetor which results from its application to wounds will prevent its use becoming general for this purpose. It may prove of value as an internal hemostatic in hematemesis and the hemorrhage of typhoid fever.

LIMON, Lemon,—is the fruit of *Citrus Limonum*, a tree of the nat. ord. Rutaceæ, native in Asia, but cultivated in southern Europe and many other countries. It is official in the two forms described below. The Orange (*Citrus Vulgaris* and *C. Aurantium*), the Citron (*Citrus medica*), and the Lime (*Citrus acris*), all belong to the same genus as the Lemon (*Citrus Limonum*).

Limonis Cortex, *Lemon Peel,*—is the rind of the recent fruit, and contains a *Volatile Oil*, $C_{10}H_{16}$, which is official, and a bitter crystalline glucoside, *Hesperidin*, $C_{22}H_{26}O_{12}$, chiefly contained in the white portion of the rind.

Limonis Succus, *Lemon Juice,*—is the freshly expressed juice of the ripe fruit, each lemon yielding from ⅔ to 1 fluid ounce. It contains about 7 per cent. of free Citric Acid, besides Phosphoric and Malic Acids, Citrates of Potassium and of other bases, etc. Dose, ℥ss–iv.

Acidum Citricum, *Citric Acid*, $H_3C_6H_5O_7 + H_2O$,—is obtained from the juice of the Lemon or the Lime by adding chalk to form Calcium Citrate, which is then decomposed by dilute Sulphuric Acid. It occurs in colorless, rhombic crystals which are very soluble in water. A solution of gr. xvij in ℥ss of water corresponds to ℥ss of fresh lemon-juice, and this quantity of either will neutralize of Potassium Bicarbonate gr. xxv, of Sodium Bicarbonate gr. xx, and of Ammonium Carbonate gr. xivss. Dose, gr. x–xxx.

Citrates of Bismuth, Bismuth and Ammonium, Iron, Iron and Ammonium, Iron and Quinine, Iron and Strychnine, Lithium, Magnesium, Potassium, nine in all, are official. They are described under their respective bases, to which rather than to the acid their medicinal qualities are due.

Preparations.

Oleum Limonis, *Oil of Lemon*, $C_{10}H_{16}$,—is the volatile oil, isomeric with oil of turpentine, and extracted from fresh lemon peel by mechanical means. It is used for flavoring and is an ingredient of Spiritus Limonis, Spiritus Aurantii Compositus, and Spiritus Ammoniæ Aromaticus. Dose, ♏ j–v.

Spiritus Limonis, *Spirit of Lemon, Essence of Lemon,*—is prepared by macerating 5 of the Oil and 5 of the Peel, freshly grated, in Deodorized Alcohol to 100. Used for flavoring. Dose, according to the amount of alcohol desired to be given.

Syrupus Acidi Citrici, *Syrup of Citric Acid,*—has of Citric Acid 10, Water 10, Spirit of Lemon 10, Syrup to 100. Dose, indefinite.

PHYSIOLOGICAL ACTION.

LEMON-PEEL is bitter and probably tonic to the stomach, but is only used for flavoring purposes. LEMON-JUICE, on the other hand, is refrigerant and antiscorbutic, entering the blood as alkaline citrates, potassium salts and phosphoric acid, the citrates being therein partly oxidized into CO_2 and H_2O, while the potassium salts and phosphoric acid probably act upon the red corpuscles.

CITRIC ACID has the same general action as Acetic and the other vegetable acids (see ACIDUM ACETICUM, *ante*, page 61). It is wholly decomposed in the blood, and appears to be non-toxic in man, but used internally it may precipitate uric acid and thus promote the formation of calculi.

THERAPEUTICS.

Lemon-juice is employed largely in the treatment and prevention of scurvy, in which disease it possesses powers of specific rank, but whether its action therein is due to the citric acid, the phosphoric acid or the salts of potassium is not known. Lime-juice is equally efficient but Citric Acid itself is not so.

As refrigerants and Diuretic mixtures in fevers, Lemon-juice and Citric Acid are much used, entering into the composition of lemonades, effervescing draughts, etc., to allay thirst and subdue restlessness, and to promote the action of the skin and the kidneys. For acidity of the stomach they are efficient if given in small doses before meals, but the mineral acids are usually preferred for this purpose. Long-continued they will impair digestion and impoverish the blood. Atheromatous degeneration of the vessels is said to be retarded by the daily use of lemon-juice, which is supposed to dissolve the excess of organic matter and to aid its excretion. Obesity may be reduced by using the juice of limes or lemons in large quantity, but it will be done at the expense of the digestion. Lemon-juice has been found of service in acute rheumatism, probably through the alkalies which it conveys into the blood. As a local application it has been found efficient in pruritus scroti, sunburn, post-partum hemorrhage, and as a gargle in diphtheritic sore throat.

LINUM, Linseed, *Flaxseed*,—is the seed of *Linum usitatissimum* (flax), a cultivated annual plant of the nat. ord. Lineæ. The seeds are small, flattened, oblong-ovate bodies, brown and glossy, inodorous, taste mucilaginous and bitter; and contain 15 per cent. of *Mucilage* in the epithelium, also 30 to 40 per cent. of *Fixed Oil* in the embryo. Ground Linseed should yield not less than 25 per cent. of the fixed oil.

Preparations.

Oleum Lini, *Linseed Oil*,—the fixed oil expressed from Linseed without the use of heat. A yellow, oily liquid, of slight odor, bland taste, and neutral reaction, soluble in about 10 of absolute alcohol and in 1½ of ether. Consists chiefly of the Glyceride of *Linoleic Acid*, $C_{16}H_{28}O_4$, which having a powerful affinity for oxygen becomes resinoid on exposure to the air, making it a "drying oil." Dose, ℥ss–ij.

Infusum Lini, *Linseed Tea* (Unofficial),—Linseed ʒiij, Liquorice-root ʒj, Boiling Water ℥x, infused for four hours and strained. Dose, indefinite.

Linimentum Calcis, *Lime Liniment*, *Carron Oil*,—consists of equal volumes of Linseed Oil and Limewater, emulsified by agitation. A favorite application for burns.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Linseed is demulcent, emollient, expectorant and diuretic. The oil is laxative in a dose of ℥j, and in smaller doses is oxidized in the system and excreted as a resinoid body by the kidneys, which it stimulates slightly. The Infusion contains the mucilaginous principle and a small portion of the oil, and is advantageously used in inflammations of the mucous membrane of the throat, the gastro-intestinal tract and the urinary passages. It is an excellent demulcent in coughs of various kinds, and will be found very serviceable in cystitis, irritable bladder, renal colic, strangury, etc. The Oil may be administered internally as a laxative, and has considerable reputation as a remedy for hemorrhoids in doses of ℥ij twice daily. For laxative purposes (especially in children) it is usually administered as an enema. Externally it is a favorite application to burns, when made into an emulsion with lime-water, as in the official Linimentum Calcis. The ground seed (linseed or flaxseed meal), is one of the best agents for making poultices, and is universally employed for that purpose. (Compare the article POULTICES in Part III.)

LITHIUM, Li,—is represented in the Pharmacopœia by five of its salts, of which the Carbonate is but slightly soluble while the others are readily so. The low atomic weight of this metal (7) makes its saturating power greater than that of other alkaline metals, hence the value of its salts in medicine.

Salts of Lithium.

Lithii **Benzoas**, *Lithium Benzoate*, $LiC_7H_5O_2$,—is classed with the Benzoates and described under BENZOINUM. (See *ante*, page 145.)

Lithii **Bromidum**, *Lithium Bromide*, LiBr,—is classed with the Bromides and described under BROMUM. (See *ante*, page 149.)

Lithii **Carbonas**, *Lithium Carbonate*, Li_2CO_3,—a light, white powder, permanent in the air, odorless, of alkaline taste and reaction, soluble in 80 of water, insoluble in alcohol. Dose, gr. ij–xv.

Lithii **Citras**, *Lithium Citrate*, $Li_3C_6H_5O_7$,—a white, deliquescent powder, odorless, of faintly alkaline taste and neutral reaction, soluble in 2 of water, almost insoluble in alcohol. Dose, gr. v–xxx.

Lithii **Citras Effervescens**, *Effervescent Lithium Citrate*,—prepared from the Carbonate 7, with Sodium Bicarbonate 28, Citric Acid 37, and Sugar to 100. Dose, ʒj–ij, in water, as an effervescent drink.

Lithii **Salicylas**, *Lithium Salicylate*, $2LiC_7H_5O_3$,—is classed with the Salicylates and described under SALIX.

PHYSIOLOGICAL ACTION.

The Lithium salts have strong alkaline qualities and act on the system in the same manner as other alkalies (see under POTASSIUM). The high saturating power of this metal makes its salts more alkaline than those of Potassium, Sodium or Calcium, hence more efficient in alkalinizing the urine. Lithium Urate is the most soluble of the alkaline urates, hence the value of lithium salts in the uric acid diathesis. The Carbonate and

Citrate are the salts referred to in this connection, the others partaking more of the qualities of their acid factors. Both these salts are antacid and strongly diuretic, the Carbonate being but slightly soluble is given in wafer or in carbonic acid water, and the Citrate in solution. The latter may be extemporaneously prepared by adding citric acid to an aqueous solution of the carbonate, and in the organism is decomposed, the citric acid being oxidized and the carbonate formed. Many mineral waters contain small quantities of the carbonate, varying from a mere trace to grain 0.01 to a pint, an amount so minute as to be practically inert in comparison with the much greater quantities of potassium and sodium salts in the same waters.

THERAPEUTICS.

Lithium Carbonate and Citrate are extensively used in gout and the lithæmic diathesis, for the purpose of holding the uric acid in solution as lithium urate, and preventing its deposit in the tissues as sodium urate which is less soluble. Their prolonged administration is so efficient in this affection that they have been credited with the power of dissolving uric acid calculi and called lithontriptics. They are also highly useful in the indigestion and rheumatism of obese subjects, and in irritable bladder from excess of acid in the urine. Lithiated Arsenical Water has been lately praised as a remedy in diabetes.

LOBELIA, Lobelia, *Indian Tobacco,*—the leaves and tops of *Lobelia inflata* (nat. ord. Lobeliaceæ), collected after a portion of the capsules have become inflated. The plant is a common annual weed growing on roadsides throughout the United States, having pale-green, alternate leaves, a single, erect and very hairy stem, with hairy branches and small, pale-blue flowers, odor slight but irritating, taste at first mild, afterwards burning and acrid. It contains gum, resin, fixed oil, wax, lignin, salts of lime, potassium and iron, a liquid alkaloid, *Lobeline,* which is the narcotic principle of the plant, also *Lobelic Acid,* and an acrid substance named *Lobelacrin.*

Preparations.

Extractum Lobeliæ Fluidum, *Fluid Extract of Lobelia.*—Dose, ♏ j–x.
Tinctura Lobeliæ, *Tincture of Lobelia,*—20 per cent. Dose, ♏ v–xxx.
Infusum Lobeliæ, *Infusion of Lobelia* (Unofficial),—℥j to a pint. Dose, ʒj–℥j.
Lobelinum, *Lobelin* (Unofficial),—an impure resinoid. Dose, gr. ss–j.

PHYSIOLOGICAL ACTION.

Lobelia has an acrid, nauseous taste, and a heavy, unpleasant odor. It is expectorant, diaphoretic, emetic, purgative, antispasmodic, motor-depressant and narcotic. It excites an abundant flow of saliva, much gastric mucus, profuse urination and sweating, with nausea, vomiting and great depression. The heart's action is enfeebled, and the blood-pressure, at first increased, soon falls; muscular debility, reduced temperature and coma follow, and death occurs by paralysis of the respiratory apparatus. The drug produces paralysis of the motor nerve-trunks, the peripheral vagi, and probably the respiratory and vaso-motor centres also. It strongly resembles tobacco in its action, and is highly dangerous in full medicinal doses, having caused many deaths when administered therapeutically, the most important instance of its fatal results being the case of Ezra Lovett, Jr., who in 1809 was poisoned by Lobelia administered by the founder of the Thomsonian sect of medical practitioners. The responsible party escaped conviction on the plea that he gave the drug in ignorance of its qualities.

Antidotes and Incompatibles.

Tannic Acid to form the insoluble tannate. Strychnine, Picrotoxine and Thebaine antagonize its action on the nervous system;—the vaso-motor excitants, as Alcohol, Digitalis, Belladonna, Ergot, etc., antagonize its effects on the circulation. Caustic alkalies are incompatible, decomposing the alkaloid.

THERAPEUTICS.

Lobelia was a favorite remedy with the Indians at the time of the first settlement of the United States, and was introduced into regular practice as an anti-asthmatic, after having served as the main stock-in-trade of irregular practitioners for many years. Its principal therapeutic action is that of an antispasmodic, and in cautious hands it is extremely useful in paroxysmal spasmodic asthma, as well as in dry cough with constant tickling in the throat. As an enema in cases of strangulated hernia the infusion is much safer than Tobacco and fully as efficient, and may overcome the obstruction in intussusception, while the tincture in 2-drop doses every hour will often relieve a case of impacted cæcum. In constipation from atony and deficient secretion a 10-minim dose of the tincture at bedtime acts excellently, and in the poison-oak eczema the infusion is a good local application. As an emetic it is entirely too depressant for children's use.

LYCOPODIUM,—is a very mobile, pale-yellow, fine powder, consisting of the spores of the Club-moss, *Lycopodium clavatum*, and of other species of Lycopodium (nat. ord. Lycopodiaceæ). The plant is a native of Europe and the U. S., has a trailing stem several feet long, with smooth, deep-green, pointed leaves, flowers in terminal spikes, and yellow capsules which contain the seeds. Lycopodium is odorless, tasteless, floats on water, which does not wet it, and burns quickly when thrown on a flame. It should be free from pine-pollen, starch, sand and other impurities, which are detected by means of the microscope, the spores being about $\frac{1}{800}$ of an inch in diameter, four-sided and reticulated, with short projections on the edges. They contain about 47 per cent. of a bland, fixed oil.

The plant was formerly considered to be diuretic and anti-spasmodic, and was used in rheumatism, epilepsy and pulmonary and renal disorders. The powder is now employed quite extensively in pharmacy to facilitate the rolling of a pill-mass and to prevent adhesion of pills to each other. It makes an excellent absorbent and protective powder when dusted over an excoriated surface, as seen between the thighs of infants.

By the homœopathic practitioners Lycopodium is elevated to the rank of an active drug when triturated with sugar of milk sufficiently long to break up the seeds and liberate their oily contents. In their first centesimal trituration ($\frac{1}{100}$) it is said to have produced symptoms of high excitement of the circulation and irritation of the urinary organs, and they profess to use it with benefit in many affections of the mucous tracts, dyspepsia, pyrosis, flatulence, constipation, ileo-colitis of infants, hepatic congestion, aneurism, chronic affections of the lungs and bronchi, diphtheria, lithiasis, intertrigo, porrigo capitis, plica polonica and pruritus ani, in all of which as an internal remedy and in high attenuation.

MAGNESIUM, Mg.—This metal is represented by its Oxide, Carbonate, Citrate and Sulphate, of which the latter occurs native in sea-water, caves, etc., the others being prepared from it. The first two are almost insoluble in water or alcohol. Its salts are either white or colorless, and those which are official are as follows:—

Official Salts of Magnesium.

Magnesia, *Magnesia*, *Magnesium Oxide*, MgO,—made by heating the light carbonate in a crucible to expel nearly all the carbonic acid. A white, light and very fine powder, almost insoluble in water, insoluble in alcohol, and gelatinizes with 15 of water after standing ½ hour, having become hydrated. Is a constituent of Pulvis Rhei Compositus, Massa Copaibæ and Ferri Oxidum Hydratum cum Magnesia. Dose, gr. x–ʒj.

Magnesia Ponderosa, *Heavy Magnesia*, *Magnesium Oxide*, MgO,—is a white, dense and very fine powder, corresponding in other properties and reactions with Magnesia, except that it does not gelatinize with water. It is made by calcining the heavier variety of the carbonate, and is much slower in action than the light magnesia. Dose, gr. x–ʒj.

Magnesii Carbonas, *Magnesium Carbonate*, $(MgCO_3)_4Mg(HO)_2 + 5H_2O$,—light, friable masses, or powder, odorless and tasteless, insoluble in alcohol, almost insoluble in water. Dose, gr. x–ʒj.

Magnesii Sulphas, *Magnesium Sulphate*, *Epsom Salt*, $MgSO_4 + 7H_2O$,—colorless prisms or acicular needles, slowly efflorescent, odorless, of cooling, saline taste, and neutral reaction, very soluble in water, insoluble in alcohol. Is a constituent of Infusum Sennæ Compositum. Dose, ʒj–℥j.

Preparations.

Magnesii Citras Effervescens, *Effervescent Magnesium Citrate*,—is prepared from the Carbonate 10, Citric Acid 46, Sodium Bicarbonate 34, Sugar 8, Alcohol and Distilled Water, as required. A coarsely granular, white, deliquescent salt, of acid taste and reaction, soluble in 2 of water with copious effervescence, insoluble in alcohol. Dose, ʒj–℥j.

Liquor Magnesii Citratis, *Solution of Magnesium Citrate*,—prepared from the Carbonate 15, Citric Acid 30, Syrup of Citric Acid 60, Potassium Bicarbonate 2½, Water to 360. Dose, ℥iv–vj, repeated for catharsis.

Mistura Magnesiæ et Asafœtidæ, *Magnesia and Asafetida Mixture*, *Dewees' Carminative* (Unofficial),—contains of the Carbonate 5, Tincture of Asafœtida 7, Tincture of Opium 1, Sugar 10, and Distilled Water to 100. Dose, ʒss–iv. Used for flatulent colic and diarrhœa in infants.

PHYSIOLOGICAL ACTION.

MAGNESIA and the CARBONATE are mildly laxative and antacid, neutralizing free acids in the stomach and forming therewith laxative salts. If used in large quantity for any length of time it may become hydrated and produce intestinal concretions. The freshly-precipitated hydrate (see above, MAGNESIA) is an antidote to Arsenic in solution, but less effective than the Hydrated Sesquioxide of Iron, with which it is combined in the official Ferri Ox. Hydratum cum Magnesia. (See *ante*, page 236.) Magnesia may also be used in acid or phosphorus-poisoning.

The CITRATE and SULPHATE are saline cathartics, the latter being the most powerful, producing prompt and free watery discharges, with but little griping or irritation, but frequently a sense of coldness and depression. The purgative action is chiefly due to their causing a greatly increased secretion of intestinal fluids, not by outward osmosis from the vessels, as was formerly taught, but by stimulation of the intestinal glandular appendages. If the purgative action should not take place a diuretic one may result, but to secure the desired catharsis the drug should be administered in a considerable quantity of water. Magnesium Sulphate is the principal aperient constituent of many of the popular laxative mineral waters, as Friedrichshall, Püllna, Hunyadi, etc.

THERAPEUTICS.

Magnesia and the Carbonate are used as antacids and laxatives, in acidity, sick headache, flatulent colic, etc., and as antidotes in poisoning by acids, arsenic, phosphorus, mercuric and cupric salts. The Citrate is an agreeable laxative, cooling and acceptable to the stomach. The Sulphate is the most efficient of the saline cathartics and has a wide field of application. In acute inflammatory conditions, renal and cardiac dropsy, ascites from obstruction of the portal circulation, increased blood-pressure within the cranium, intestinal obstruction without acute inflammation, the constipation of lead poisoning, and habitual constipation from deficiency of the intestinal secretions, this agent will be found to be exceedingly serviceable. Acute dysentery is well treated by Magnesium Sulphate combined with diluted Sulphuric Acid, and followed by Opium and starch enemata. Bleeding from hemorrhoids and uterine hemorrhage are often relieved by the same combination when other agents fail. In acne vulgaris and other obstinate eruptions due to derangement of the stomach and intestinal canal, good results are often obtained by a purgative dose of the Sulphate daily before breakfast, or by doses of 5 grains in water three or four times a day. The same salt, finely triturated, makes an excellent dusting powder for cases of acne rosacea. The ferro-saline mixture (see *ante*, page 238) is a very useful laxative in the constipation of anæmic women. The bitter taste of Epsom Salt is best covered by coffee.

MAGNOLIA (Unofficial),—is the bark of *Magnolia glauca* (Sweet Bay, Swamp Sassafras), *M. acuminata* (Cucumber-tree), and *M. tripetala* (Umbrella-tree), all of which belong to the nat. ord. Magnoliaceæ, and are indigenous to the eastern and southern States. It occurs in quilled or curved pieces, of orange-brown color externally, whitish or pale-brown internally, taste astringent, pungent and bitter. It contains a crystalline principle named *Magnolin*, which is insoluble in water, but soluble in alcohol, ether, etc. Dose of the powdered bark, ʒ ss–j.

Magnolia is an aromatic bitter tonic and diaphoretic, usefully employed in chronic rheumatism, remittent and intermittent fever. In the latter affection it will arrest the paroxysms if used freely.

MALTUM, Malt (Unofficial),—is the seed of *Hordeum distichum*, Barley (nat. ord. Gramінaceæ), caused to enter the incipient stage of germination by artificial means and dried. The germination is allowed to go far enough to develop the maximum amount of *Diastase*, the peculiar ferment by which the starch of the grain is converted into Glucose. Malt is the source of beer, ale and whiskey, and is composed of the germinated, dead grains with their acrospires and radicles. It should be fresh, not darker in color than a pale amber, and of agreeable odor and sweet taste.

Extractum Malti, *Extract of Malt* (Unofficial),—is a liquid of the consistence of thick honey, containing all the soluble principles of malt in permanent form. It consists chiefly of diastase and glucose. Dose, ʒj–iv.

Horlick's Food (Unofficial),—is like Mellin's and many other foods for children, a granulated Extract of Malt. *Hoff's Malt Extract* is another such preparation, containing alcohol, and corresponding to a concentrated beer.

Malt Extract is directly nutritive, containing good food elements, and indirectly so from the presence of the ferment Diastase, which converts the starch of bread or other farinas into sugar. It is usefully employed in wasting diseases, and mixed with milk or oleaginous foods it aids their digestion and assimilation. It may be used to form a syrupy mixture with preparations of Iron or Cinchona.

MANACA (Unofficial),—is the root of *Franciscea uniflora*, a shrub of the nat. ord. Scrophulariaceæ, indigenous to Brazil, where it is known as Mercurio-vegetal, or Vegetable Mercury, a name applied by charlatans to a number of widely differing plants. Very little is known about Manaca, but it has been extensively advertised as an unfailing remedy for sub-acute and chronic rheumatism. It is also considered purgative, diuretic, emmenagogue and antisyphilitic, being official in the Brazilian Dispensatories, and noticed as follows in the *Dict. de Botan. Brazileira.*

"This whole plant, but especially the root, excites powerfully the lymphatic system, eliminating morbid matter by the skin and kidneys. It is antisyphilitic; the interior bark is nauseating and stimulates the throat. In small doses it is resolvent; in larger purgative, diuretic and emmenagogue. In large doses it is an acrid poison."

A fluid extract is on the market, the average dose of which is ♏ x three or four times daily.

MANGANUM, Manganese, Mn.—This metal is represented in the Pharmacopœia by two of its salts, viz.—the native Black Oxide and the Sulphate, as follows:—

Mangani Dioxidum, *Manganese Dioxide, Black Oxide of Manganese,*—is the native, crude Dioxide of Manganese, containing at least 66 per cent. of the pure Dioxide, MnO_2. A heavy, grayish-black powder, odorless and tasteless, insoluble in water or alcohol, giving off oxygen gas at a red heat, and if heated with hydrochloric acid it causes the evolution of chlorine gas. Is used in preparing Chlorine Water. Dose, gr. ij–x.

Mangani Sulphas, *Manganese Sulphate,* $MnSO_4 + 4H_2O$,—colorless prisms, of slightly bitter and astringent taste, faintly acid reaction, very soluble in water, insoluble in alcohol. Dose, gr. ij–v.

Preparations.

Potassii Permanganas, *Potassium Permanganate,* $KMnO_4$,—deep, purple-violet prisms, of sweet and astringent taste, neutral reaction, soluble in 16 of water with a scanty, brown residue, decomposed by alcohol and by heating to 464° F. It should be kept in well-stoppered bottles, and should not be triturated nor combined in solution with organic or readily oxidizable substances. Dose, gr. ss–ij, in pill.

Syrupus Mangani Iodidi, *Syrup of Manganese Iodide* (Unofficial),—contains about ʒj of the iodide in each ℥. Dose, ♏ x–xxx. For formula see U. S. Dispensatory.

Syrupus Ferri et Mangani Iodidi, *Syrup of Iron and Manganese Iodide* (Unofficial),—each ℥ contains gr. 50 of the mixed iodides in the proportion of 3 of the Iodide of Iron to 1 of that of Manganese. Dose, ♏ x–xxx. For formula see U. S. Dispensatory.

Ferri et Mangani Carbonas Saccharatus, *Saccharated Iron and Manganese Carbonate* (Unofficial),—is a tasteless, reddish-brown powder. Dose, gr. v–xx. For formula see U. S. Dispensatory.

Condy's Red Fluid (Unofficial),—is a solution of Potassium Permanganate in Distilled Water, of about 2 per cent. strength, namely gr. viijss to the ℥, or gr. 176 in ℥20. It is used as a deodorant and disinfectant, for closets, bed-pans, and to wash the hands and utensils. Is non-irritant, and has the advantage of showing by its change in color when it has lost its efficacy.

PHYSIOLOGICAL ACTION.

The salts of MANGANESE in small doses improve the appetite and the digestion and stimulate the action of the heart. Used in larger doses and for considerable length of time they lower the heart's action, paralyze the muscular system, especially the muscular coat of the arteries, causing progressive wasting, paraplegia, and acute fatty degeneration of the liver. They are gastro-intestinal irritants, and the Sulphate is emeto-cathartic and decidedly cholagogue. Manganese is closely associated with Iron in the blood, bile, etc., in the proportion of about 1 to 20. The Black Oxide is an efficient emmenagogue.

POTASSIUM PERMANGANATE is an active oxidizer, containing as it does a large proportion of oxygen which it yields very readily in the form of ozone, and then becomes manganese dioxide. This property gives it the qualities of an antiseptic, a disinfectant and a deodorant. It is considered by some authorities to be an efficient emmenagogue. Used internally it must be instantly decomposed in the stomach, and probably is not absorbed in its own state.

THERAPEUTICS.

The salts of Manganese are used by those practitioners who affect to see a manganese-anæmia in cachectic subjects, but they are always combined with ferric preparations. In amenorrhœa, gastrodynia and pyrosis the dioxide is a good remedy, and the same salt is used as an ointment in many skin diseases. In jaundice of malarial origin or catarrh of the biliary passages the sulphate gives good results.

POTASSIUM PERMANGANATE is employed as an antiseptic and oxidizing agent in such affections as diphtheria, scarlatina, septicæmia, erysipelas, etc., in which it may be given internally and used locally at the same time. It is given with apparent benefit in dyspepsia, flatulence, lithæmia and obesity, and has often seemed to be of service in acute rheumatism. In amenorrhœa it is reported to be very efficient, and has lately been used with success as a remedy for the bites of venomous serpents and for other animal poisons. For internal use it should be given in pill, as the taste of a solution is very disagreeable. Locally it is frequently employed (ʒj to the pint) to correct fetor in cancer, ulcer, caries, abscesses, ozæna, and it will destroy the odor of a foul breath or that of the fetid perspirations of the feet. It is used both as a test and as a corrigent for organic impurities in drinking water. The stain left by it on fabrics may be removed by sulphurous acid, but, as sulphuric acid is formed in the reaction, the fabric should be immediately washed or rinsed in water. It has lately come into use as an antidote against morphine.

MANGANESE is becoming more of an acknowledged remedy in derangements of the menstrual function, as irregular or scanty menstruation, amenorrhœa, menorrhagia, and even metrorrhagia. By some authorities, the emmenagogue power of potassium permanganate is ascribed to its large proportion of oxygen, which it is supposed to give up to the uterus; as, until recently, potassium chlorate was supposed to do by the system at large. According to the views of others who have studied its action, Manganese should be classed with the excito-motors, increasing arterial tension, and specifically acting upon the uterus. The best preparation is the Dioxide, in freshly-made pills of two grains each, of which 1 to 3 or 5 pills may be taken twice or thrice daily. Potassium Permanganate has generally been the preparation given when the effects of Manganese were desired; but as it causes great gastric irritability, with abdominal pains and burning sensations, besides other decidedly unpleasant symptoms, it is a difficult matter to get patients to take it for any length of time.

MANGO (Unofficial),—is the bark of *Mangifera indica*, an Indian tree of the nat. ord. Guttiferæ. It is supposed to be an astringent with special tonic action upon mucous membranes. It is highly recommended by its vendors for nasal catarrh, hemorrhages, and muco-purulent discharges from the intestines, uterus, vagina and bronchi. A fluid extract is sold, which may be used in doses of ♏ x–ʒj.

Mango-Fruit, or *Mangosteen*, is the fruit of *Garcinia mangostana*, nat. ord. Guttiferæ, also from India. It is a powerful astringent, and is used for nasal catarrh, diarrhœas, dysentery, leucorrhœa, etc.

MANNA,—is the concrete, saccharine exudation of *Fraxinus Ornus*, or Flowering Ash, a tree of the nat. ord. Oleaceæ, growing in Southern Europe. Manna is produced also by several other trees, and substances resembling it are exuded by many plants. The official Manna occurs in three-edged, flattish pieces, brownish-white and glutinous externally, white and crystalline internally, odor honey-like, taste sweet, slightly bitter and faintly acrid. It contains from 40 to 90 per cent. of *Mannit*, $C_6H_{14}O_6$, or Manna-sugar, which does not undergo vinous fermentation, and is chemically allied to the alcohols and to glycerin. Manna also contains glucose, mucilage, some acrid resin, and a small quantity of the fluorescent glucoside *Fraxin*, $C_{16}H_{18}O_{10}$. There are no official preparations, but Manna itself may be given in doses of ℥j–ij.

Manna is a mild laxative, with some tendency to produce flatulence and colic. It is usually combined with other purgatives, as Senna, Rhubarb, Magnesia, etc., to disguise the taste and increase the effect. It is a constituent of the official Infusum Sennæ Compositum. Manna may be eaten by children if of good quality, or may be readily dissolved in milk and so administered.

MARRUBIUM, Horehound,—the leaves and top of *Marrubium vulgare*, a plant of the nat. ord. Labiatæ, native in Europe, but naturalized in America. It contains a bitter principle named *Marrubiin*, also a volatile oil, resin, tannin, lignin, etc. There are no official preparations. Dose, ʒss–j.

Horehound in large doses is laxative, diuretic and diaphoretic, and in ordinary dosage it is a gentle tonic and stomachic. It is generally used in catarrhal states of the air-passages, over which it seems to have a soothing effect, and is much employed in confectionery as an ingredient in "cough-drops."

MASTICHE, Mastic,—is a concrete, resinous exudation from *Pistacia Lentiscus*, a tree of the nat. ord. Anacardieæ, growing in the island of Scio. It occurs in globular tears, covered with a whitish dust, of weakly resinous odor and slightly terebinthinate taste. Alcohol dissolves about 90 per cent. including the resin *Mastichic Acid*, $C_{20}H_{32}O_2$, the remainder consisting of another resin *Mastichin*, which is soluble in ether and resembles copal. There are no official preparations, but Mastic is an ingredient of the official Pil. Aloës et Mastiches (see *ante*, page 105).

Mastic was formerly used for supposed properties analogous to those of other oleoresins, but now its application is confined to dentistry, being employed as a temporary filling for carious teeth. A solution in ether is applied on cotton with moderate pressure, and remains as a firm plug after evaporation of the solvent.

MATICO,—the leaves of *Piper angustifolium*, a Peruvian shrub of the nat. ord. Piperaceæ. They are 4 to 6 inches long, and prominently venated on the under surface, the veins forming deep, angular meshes. Matico contains a crystallizable acid named *Artanthic Acid*, also resin, tannin, and a volatile oil. Its odor is aromatic, and its taste astringent, spicy and somewhat bitter.

Preparations.

Extractum Matico Fluidum, *Fluid Extract of Matico.*—Dose, ʒss–ij.
Tinctura Matico, *Tincture of Matico,*—10 per cent. Dose, ℥ss–ij.

Matico is an aromatic tonic and stimulant, also aphrodisiac, vulnerary and hemostatic. It acts, like cubebs, on the urinary passages, and is an excellent alterative stimulant to mucous membranes. It has been used with considerable success in mucous catarrhs, as gonorrhœa, leucorrhœa, chronic cystitis, etc., also in epistaxis, hemorrhoids, menorrhagia, hemoptysis, hematemesis and other hemorrhages. The under surface of the leaf is so formed as to promote coagulation of blood if applied to a bleeding surface, and therefore it is a good local hemostatic for trivial cuts or wounds.

MATRICARIA, German Chamomile,—the flower-heads of *Matricaria Chamomilla*, a European annual plant of the nat. ord. Compositæ. They are small, yellow flowers, with white ray-florets, the receptacle being hollow, naked and conical, of strongly aromatic odor and bitter taste; and contain ¼th per cent. of a blue Volatile Oil (the color of which is due to *Azulen*), also a bitter extractive, tannin, etc. There are no official preparations, but the flowers may be eaten or a decoction or infusion used almost *ad libitum*.

Matricaria is a mild tonic, in large doses emetic, anthelmintic and antispasmodic. It is much used in Germany, and in this country is a popular domestic remedy among German people, who use it in infusions as a diaphoretic, etc. This plant is the "Chamomilla" of the homœopaths, who find in it remarkable power over morbid impressionability of the sensory and excito-motor nerves, and administer it in various pains, aggravated at night and by warmth, clonic spasms of pregnancy, irritability of teething-children, flatulent colic, etc.

MEL, Honey,—is a saccharine secretion deposited in the honeycomb by *Apis mellifica*, the honey-bee; occurring as a pale-yellowish, syrupy liquid, gradually becoming crystalline and opaque, of peculiar and heavy odor, and a very sweet, faintly acrid taste. It is a strong aqueous solution of several sugars (cane and grape sugar, levulose), with wax-pollen, coloring and odorous matters, etc. The sugars, which may be resolved into Levulose and Dextrose, amount to 70 or 80 per cent. Honey is frequently adulterated with starch and artificial glucose, which may be detected by the official tests (see U. S. Phar.). Dose, indefinite.

Preparations.

Mel Despumatum, *Clarified Honey*,—is honey heated, skimmed and strained, with Glycerin added in the proportion of 5 per cent. It is an ingredient of Confectio Rosæ, Mel Rosæ, and Massa Ferri Carbonatis. Dose, indefinite.

Mel Rosæ, *Honey of Rose*—Fluid Extract of Rose 12, Clarified Honey to 100. Dose, indefinite; generally used as a local application to the throat for its astringency and flavor, in combination with more active agents.

Honey is emollient, nutritive and laxative, in some persons giving rise to pyrosis, flatulence and colic, and in others to an eruption of urticaria, but generally constituting an agreeable article of diet. It is sometimes actually poisonous from the presence of toxic agents extracted by the bee from certain plants, in this country generally the Mountain Laurel (*Kalmia Latifolia*). Honey is chiefly used as an emollient in diseases of the throat, to relieve dryness, pain, cough and dysphagia. A mixture of Honey 8 parts to 1 each of Acetic Acid and Water is official in the Br. Phar. under the title OXYMEL, and forms a pleasant addition to gargles or a vehicle for expectorant medicines. Honey of Rose is somewhat astringent, and is used in gargles for the throat and in mouth washes.

MELISSA, Balm,—the leaves and tops of *Melissa officinalis*, a European plant of the nat. ord. Labiatæ, growing also in America. It has a perennial root, which annually gives forth several stems from 1 to 2 feet high, with leaves about two inches long, deeply serrate, hairy and glandular, and white or yellowish flowers in axillary whorls of four or five around half the stem. It contains gum, tannin, bitter extractive, and a fragrant essential oil in very small quantity (1/8 to 1/4 per cent). There are no official preparations.

Balm has little or no action, except to flavor hot water for use as a beverage or a mild diaphoretic.

MENISPERMUM,—is the rhizome and rootlets of *Menispermum canadense*, the Yellow Parilla, or Canadian Moonseed, a woody, climbing plant of the nat. ord. Menispermaceæ, native of the eastern U. S., having peltate three-to seven-lobed leaves, greenish-yellow flowers in small clusters, and a kidney-shaped fruit. The rhizome is several feet long, 1/4 inch thick, finely wrinkled, rootlets numerous, taste bitter. It contains starch, Berberine, and a white alkaloid, which is soluble in alcohol and in ether.

Extractum **Menispermi Fluidum**, *Fluid Extract of Menispermum*,—is 2/3rds alcohol. Dose, ♏v–xx.

Menispermum is reputed to have tonic properties, and is used in some of the Southern States in domestic practice as a substitute for Sarsaparilla in scrofulous conditions. Little is known about it of a definite character.

MENTHA PIPERITA, Peppermint,—the leaves and tops of *Mentha piperita*, a perennial herbaceous plant, of the nat. ord. Labiatæ, a native of Britain, but largely cultivated elsewhere. The leaves are about 2 inches long, ovate-lanceolate, sharply serrate, of aromatic odor, and pungent, cooling taste. They contain 1 to 1 1/4 per cent. of a Volatile Oil, which is official, and a little tannin.

Menthol, $C_{10}H_{19}OH$,—is a stearopten (having the character of a secondary alcohol), obtained from the official oil of peppermint, or from Japanese or Chinese oil of peppermint, (from *Mentha arvensis* and *Mentha canadensis*); by deposit therefrom on exposure to cold. It occurs in colorless, acicular crystals, of strong and pure odor of peppermint, and a warm, aromatic taste, followed by a sensation of cold when air is drawn into the mouth. Soluble only slightly in water, freely in alcohol, ether, chloroform, carbon disulphide or glacial acetic acid. Dose, gr. ss–iij, in pill or spirituous solution, several times a day.

Preparations.

Oleum **Menthæ Piperitæ**, *Oil of Peppermint*,—is the volatile oil distilled from the fresh herb; a colorless or pale yellow fluid of sp. gr. about 0.900, having the odor of peppermint, a strongly aromatic taste followed by a cold sensation when air is drawn into the mouth. It consists of a liquid terpene, and the stearopten Menthol (see above). Dose, ♏j–v.

Aqua **Menthæ Piperitæ**, *Peppermint Water*,—has of the oil 2 parts in 1000 of Distilled Water. Dose, indefinite.

Spiritus **Menthæ Piperitæ**, *Spirit of Peppermint*, *Essence of Peppermint*,—is an alcoholic solution containing 10 per cent. of the Oil and 1 per cent. of the powdered herb. Is an ingredient of Mistura Rhei et Sodæ. Dose, ♏x–xxx.

Trochisci **Menthæ Piperitæ**, *Peppermint Troches*,—each troche contains 1 per cent. of the Oil, with Sugar and Mucilage of Tragacanth. Dose, indefinite.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Peppermint is an aromatic stimulant, also carminative and antispasmodic. The oil possesses these qualities in greater degree and is also a local anodyne and anæsthetic when applied locally, especially if its evaporation be prevented. The Chinese oil is particularly anodyne and contains a large quantity of Menthol. Menthol is antiseptic and locally anæsthetic, but not corrosive, and acts also as a vascular stimulant when applied to the surface.

Peppermint is used internally for the relief of nausea and colic, and to expel flatus by its local stimulant and after sedative action on the bowels. It is an agreeable corrigent for combination with purgatives to prevent griping, and efficiently covers the taste of many nauseous substances. The spirit is the best form for internal use. The oil is used locally to relieve the pain of superficial neuralgia, a cloth being wet with it, laid along the course of the affected nerve and covered with oiled silk to restrain evaporation. It is also efficient in rheumatism as an anodyne counterirritant.

Menthol is highly praised as an external application in various neuralgiæ, sciatica, pleurodynia, toothache, etc. For neuralgia it is used in saturated alcoholic solution painted over the affected nerve. For toothache a crystal introduced into the carious cavity is promptly anodyne. As an antiseptic it promises well as an application in parasitic skin diseases. As the Chinese have used their Oil of Peppermint for ages as an application in neuralgiæ, and as this oil contains a large quantity of Menthol, the latter preparation will probably prove a very efficient agent in these affections if the cupidity of the manufacturers will allow of its being obtained pure. A spray containing 5 to 20 per cent. of Menthol is highly recommended in epidemic influenza, also in tubercular laryngitis. Menthol is of marked value in almost all cases of pruritus, from whatever cause. It possesses high power as an anti-emetic, stopping nausea and vomiting after all the usual remedies had failed. For this purpose ten drops of a 20 per cent. solution in olive oil are given on sugar.

MENTHA VIRIDIS, **Spearmint**,—the leaves and tops of *Mentha viridis*, the "mint" of the kitchen garden, a plant of the nat. ord. Labiatæ, indigenous to England, but naturalized in many countries. Its constituents and properties are identical with those of peppermint, but its odor and taste differ therefrom.

Preparations.

Oleum Menthæ Viridis, *Oil of Spearmint*,—is the Volatile Oil distilled from the plant. Dose, ♏ij–v.

Aqua Menthæ Viridis, *Spearmint Water*,—has 2 parts of the Oil in 1000 of Distilled Water. Dose, indefinite.

Spiritus Menthæ Viridis, *Spirit of Spearmint*, *Essence of Spearmint*,—is an alcoholic solution containing 10 per cent. of the Oil and 1 per cent. of the powdered herb. Dose, ♏x–xl.

Spearmint corresponds in action to Peppermint, but is generally less powerful. It is usually employed to correct flatulence and to relieve colic, and makes an agreeable flavoring for many mixtures.

METHYLENE BLUE, Tetra-Methyl-Thionine Chloride, $NS(C_6H_3)_2 2N(CH_3)_2Cl$ (Unofficial),—is an anilin derivative, which when pure is seen in small, dark blue, scaly crystals, having a copper bronze tinge, soluble in water. Dose, gr. j–iij, four or five times a day.

This substance imparts a blue color to nerve tissue and to the urine. From the facts that it manifests a strong affinity for nerve tissue, especially for the axis cylinders of sensory nerves, and that it is the best staining agent for the microbe found in the blood of malarial subjects, this agent has been expected to possess anodyne power over neuralgic and rheumatic affections and to act as an antiperiodic in malaria. It has been employed by several observers as an antipyretic and internal antiseptic for rheumatism of the joints and muscles, for malarial fever, diphtheria, acute nephritis and cancer, with varying results. Its best action in malarial affections has been obtained in children, and being tasteless may be administered to them with greater ease than quinine, besides being free from the vomiting and headache which so often result from the latter drug. In diphtheria and in simple, non-diphtheritic ulceration of the throat a ten per cent. soultion is used locally with great benefit so far as yet reported. It has lately been employed successfully in two cases of chronic cystitis.

MEZEREUM, Mezereum (*Mezereon*),—is the bark of *Daphne Mezereum* and of other species of Daphne, plants of the nat. ord. Thymelœaceæ, growing in mountainous districts of Europe and Asia and cultivated as a garden shrub in Britain. The bark occurs in long, thin bands, rolled into disks, brownish-yellow on the surface, whitish and silky within, inodorous, taste very acrid. It contains an inert, fixed oil, an inactive glucoside, ***Daphnin***, and an acrid ***Resin***, which is the anhydride of a resinous acid named *Mezereinic Acid.* Mezereum is an ingredient of the compound decoction and the compound fluid extract of Sarsaparilla. Dose, gr. j–x.

Extractum Mezerei Fluidum, *Fluid Extract of Mezereum*,—is too acrid for internal use. It is an ingredient of the Linimentum Sinapis Compositum.

Mezereum is a sialogogue, and an intensely acrid, irritant poison, producing violent vomiting, purging, nephritis and gastro-enteritis. In small doses it is laxative and diuretic, and has had considerable reputation as an alterative. Externally the recent bark is a powerful local irritant, speedily producing vesication.

Mezereum is rarely used internally by itself, but is employed in mixtures with Sarsaparilla, etc., as an alterative in syphilis, rheumatism and some skin diseases of chronic type, but with doubtful efficacy. It has been used with good effect in toothache and as a masticatory in paralysis of the tongue. Its principal use is as a local irritant to keep up the discharge from issues or blisters, and to stimulate indolent ulcers.

MORRHUÆ OLEUM, Cod-liver Oil (*Oleum Jecoris Aselli*),—is a fixed oil obtained from the fresh livers of *Gadus Morrhua* (Cod-fish) or other species of *Gadus*. It is a colorless or pale yellow, thin, oily liquid, of slightly fishy odor and taste, and faintly acid reaction, soluble in ether; sp. gr. 0.920 to 0.925. It consists chiefly of *Olein* and *Margarin*, with a peculiar principle named *Gaduin*, also Trimethylamine, free fatty Acids (oleic, palmitic, stearic), traces of Iodine, Bromine, Sulphuric and Phosphoric Acids, the ordinary inorganic salts of animal tissue and products, and perhaps bile constituents. When saponified it does not yield Glycerin but Oxide of Propyl. Three kinds or varieties are found in the market, the pale, the light-brown and the dark. The pale is the official oil and the purest. Dose, ʒj–ij on a full stomach, increased as assimilated.

Unofficial Preparations.

Glyconin Emulsion of Cod-liver Oil,—Ol. Morrhuæ ℥iv, Glyceritum Vitelli ʒix Aromatic Spirit of Ammonia ʒj, Sherry Wine ℥ij, Diluted Phosphoric Acid ʒiv, Essence of Bitter Almond (ʒj of the Volatile Oil in Oss Alcohol) ʒij. The Cod-liver Oi is to be added to the Glyconin very slowly with brisk stirring, and the other ingredient added in the order named.

Hydroleine, *Hydrated Oil,*—is said to contain, in each dose of ʒij, Cod-liver Oil ♏ 80, Distilled Water ♏ 35, Pancreatin gr. 5, Soda gr. ⅓, Salicylic Acid gr. ¼.

Physiological Action.

The action of Cod-liver Oil is that of any other fat, except that it is more easily assimilated than any member of the class. Fats in small quantity are necessary for the digestion of nitrogenous food, and form the molecular basis of the chyle, being prepared for absorption by the pancreatic juice and the bile, especially the latter. Fat is an essential constituent of the products of tissue formation, whether physiological or pathological, and is the principal material concerned in the production o force. After oxidation it is excreted as carbonic acid and water. Locally applied fats reduce the body temperature.

Cod-liver Oil is the most easily digestible of fats, penetrating anima membranes with comparative ease after being emulsified by the pancreati and biliary secretions, hence entering the lacteal vessels readily and appearing to bring with it the oily and nitrogenous elements of the food. The result is facilitation of the digestive process, increase of the re blood-corpuscles and of the body-weight, and stimulation of healthy cell formation throughout the tissues. The properties of this oil have bee ascribed to its contained biliary constituent, Iodine, free Oleic Acid, etc. but no satisfactory explanation has yet been offered for the differenc between its action and that of other animal or vegetable oils.

Therapeutics.

The use of Cod-liver Oil is that of a nutrient wholly, this action bein most marked in wasting diseases. In high febrile states or catarrhal conditions of the gastro-intestinal tract its use is contraindicated, but i phthisis a slight degree of fever will not interfere with its beneficial employment. It is found to be of most value in chronic forms of phthisis chronic bronchitis and emphysema, chronic rheumatic disorders, atherom of the arteries, strumous skin diseases and diarrhœa, syphilodermata, neuralgia, chorea and epilepsy. In many disorders referable to exhaustio or debility of the nervous centres it is of great value as a nerve tonic, an in convalescence from acute diseases it is of marked benefit. It shoul always be considered as a supplementary food, and if its use endangers th appetite for other food it should be abandoned.

The administration of this valuable agent is a serious matter, as man patients cannot overcome their repugnance to its taste and smell. Various emulsions are on the market, but they are objectionable because in no case do they conceal the taste, and the efficacy of the oil is seriously impaired by the processes used in their preparation. Moreover, the temptation is very great to employ an inferior grade of the oil or to adulterate it with other fish-oils in the manufacture of these preparations, and when the commercial spirit of gain is remembered one can never be sure of the quality of the oil so prepared. The oil itself is the best form for use, in small doses, say a teaspoonful thrice daily for an adult, after meals, in black coffee, beer or lemon-juice. The essential Oil of Eucalyptus in the proportion of 1 part to 100 of cod-liver oil will effectually extinguish the odor and taste to many persons. Alkaline stomachics given before meals, the oil after, and a teaspoonful of the "Liquor Pancreaticus" given half an hour afterwards, would be a good routine in most cases, the latter agent preventing the fishy eructations which often give so much trouble. Extemporaneous emulsions may be prepared with Glyconin, (see *ante*, page 300), White of Egg, Mucilage of Tragacanth, Extract of Malt, or any syrup, and flavored with Lemon, Cinnamon or Bitter Almond. The addition of ♏iv of Ether to each ʒ of the oil promotes its digestion by stimulating the pancreatic secretion, and enables a patient to take it with whom it had previously disagreed.

Inunction by Cod-liver Oil is a method of value is the wasting diseases of children. A tablespoonful may be rubbed into the skin of the abdomen twice a day, and covered with a flannel binder with oiled silk or mackintosh-cloth outside. It readily passes through the skin and is absorbed, producing valuable and lasting results.

MOSCHUS, Musk,—is the dried secretion from the preputial follicles of *Moschus moschiferus* (the Musk Deer), an animal inhabiting the mountainous region of Central Asia. It occurs in irregular, unctuous grains, of a reddish-brown color, peculiar and penetrating odor and bitterish taste, contained in oval sacs about 2 inches in diameter, membranous on one side, hairy on the other. About 10 per cent. is soluble in alcohol, 50 per cent. in water. Chinese Musk in the pods or sacs is the most valuable, but all varieties are much adulterated, the price of the drug being very high. The odor is destroyed by drying, but returns again on the addition of moisture. Trituration with Camphor or Hydrocyanic Acid also destroys it. The odorous principle has not been isolated, but is probably a product of decomposition which is constantly being formed. The constituents of Musk are a bitter resinous substance, ammonia, fat, cholesterin, etc. Dose, gr. ij–x.

Tinctura **Moschi**, *Tincture of Musk*,—5 per cent. Dose, ♏xx–ʒjss.

Musk is a very diffusible stimulant, acting directly on the nervous and circulatory systems, but without much energy. It is also an antispasmodic, and is employed with benefit in general prostration of the system with nervous agitation or irregular muscular action. It has been used with advantage in laryngismus stridulus, insomnia, the collapse of typhoid and typhus fevers, spasmodic affections of the stomach, obstinate hiccough and convulsions of children due to intestinal spasms. The pure Musk is very difficult to obtain, and its high price makes it an extremely expensive medicine, so that it is seldom used except as a perfume.

MYRCIÆ OLEUM, Oil of Myrcia, (*Oil of Bay*),—is a volatile oil distilled from the leaves of *Myrcia acris*, or Bayberry, a tree of the nat. ord. Myrtaceæ, native of the West Indian Islands. It is a yellowish brown liquid, of aromatic odor, pungent taste, slightly acid reaction, and soluble as a slightly turbid solution in an equal weight of alcohol. It contains a hydrocarbon and *Eugenic Acid*. Used as a perfume.

Spiritus Myrciæ, *Spirit of Myrcia, Bay Rum*,—contains Oil of Myrcia 16, Oil of Orange-peel 1, Oil of Pimenta 1, Alcohol 1220, Water to 2000. Used as a wash or perfume.

The Oil of Bay is an agreeable perfume used to prepare bay-rum and in other cosmetic preparations. The spirit, known as "Bay-rum," is used principally as a refreshing perfume, and is thought to relieve headache, faintness, etc., by application to the forehead or to the nostrils.

MYRISTICA, Nutmeg,—is the seed of *Myristica fragrans* deprived of its testa. The Nutmeg-tree is cultivated extensively in the East and West India Islands, belongs to the nat. ord. Myristicaceæ, and is a native of the Banda Islands in the Malayan Archipelago. The nutmeg is about an inch long, oval or roundish-ovate, reticulately furrowed, internally pale-brown or grayish-red with dark-brown veins, having a strongly aromatic odor and a somewhat bitter taste. It contains 4 to 9 per cent. of the official Volatile Oil, and 30 per cent. of a concrete oil, commonly called "Oil of Mace," which is a compound of fluid glycerides of Oleic and Butyric Acids, and the solid glyceride of *Myristic Acid*, some resin and volatile oil. Dose, gr. v–xx.

Macis, *Mace*,—is the arillode (or fleshy covering) of the seed of *Myristica fragrans*, the Nutmeg-tree. It occurs in narrow bands about an inch long, branched and lobed, of brownish-orange color, fragrant odor, warm and aromatic taste. It yields a fixed oil by pressure and a volatile oil by distillation, the latter being probably identical with Oil of Nutmeg. Dose, gr. v–xx.

Preparations.

Oleum Myristicæ, *Oil of Nutmeg*,—is the volatile oil, and consists chiefly of a terpene and an oxygenated oil, *Myristicol*. It is colorless or pale-yellow, of hot, spicy taste and neutral reaction, and is soluble in alcohol. Dose, ♏j–v.

Spiritus Myristicæ, *Spirit (or Essence) of Nutmeg*,—is a 5 per cent. solution of the oil in alcohol. Dose, ʒj-ij.

Nutmeg is an ingredient of Acetum Opii, Pulvis Aromaticus, Tr. Lavandulæ Co., Trochisci Cretæ, and Trochisci Sodii Bicarbonatis.

Physiological Action and Therapeutics.

Nutmeg is an aromatic stomachic of agreeable flavor. In small doses it stimulates the production of gastric juice, and thus promotes digestion and increases appetite. It also relieves intestinal spasm and flatulence. In large doses it is powerfully narcotic, acting directly on the cerebrum, and producing stupor and delirium. It is used chiefly for flavoring purposes, and generally in substance, grated as required, but has been employed as a carminative, anodyne and astringent in diarrhœas and dysentery, as well as to relieve nausea and vomiting. Strangury is efficiently treated by small doses of powdered nutmeg given several times a day; and the same remedy is often used in the south of Germany to relieve the uncomfortable feeling experienced after drinking an excessive quantity of new beer. The Volatile Oil is decidedly rubefacient when used externally, and has narcotic powers if used internally in sufficient quantity. It is occasionally employed as an external stimulant in paralysis and chronic rheumatism.

Mace is stimulant, carminative and aromatic. It is used solely as a spice or condiment.

MYRRHA, Myrrh,—is a gum resin obtained from *Commiphora Myrrha*, an Arabian tree of the nat. ord. Burseraceæ, collecting spontaneously upon the bark, and occurring in roundish tears, having a waxy fracture, a balsamic odor, and an acrid and bitter taste. Triturated with water it yields a brownish-yellow emulsion; with alcohol it yields a brownish-yellow tincture which turns purple on the addition of nitric acid. It contains 60 per cent. of gum, 35 per cent. of *Myrrhin*, a resin, and about 2 per cent. of an oxygenated ethereal oil, *Myrrhol*, $C_{10}H_{14}O$. Dose, gr. x–xxx.

Preparations.

Tinctura Myrrhæ, *Tincture of Myrrh*,—20 per cent. Dose, ♏x–xxx.

Myrrh is also contained in Mist. Ferri Co., Pil. Aloës et Myrrhæ, Pil. Rhei Co., and Tr. Aloës et Myrrhæ.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Myrrh in small doses stimulates the gastro-intestinal mucous membrane; in large doses it is an irritant thereunto, producing vomiting and purging. It quickens the action of the heart and diminishes the bronchial secretion. It is a uterine stimulant and emmenagogue, a stimulant expectorant, and is thought to increase the number of leucocytes in the blood. Locally it is stimulant and disinfectant to mucous membranes and ulcerated surfaces.

Mryrh is used internally in the various combinations noted above for anæmia and amenorrhœa, bronchial catarrh, etc. It has been supposed to diminish excessive secretion from the mucous surfaces of the uterus, vagina, bladder, and bronchi, and to have an especially beneficial influence on chronic pharyngitis. Locally, the tincture has a good tonic action on diseased mucous surfaces, and is applied to spongy gums, relaxed throat, aphthous patches and unhealthy ulcers. The tincture diluted with water makes an excellent disinfectant and stimulant gargle in ulcerated sore-throat. Myrrh has long been used as an ingredient of dentifrices.

NAPHTALINUM, Naphtalin, (*Naphthalene*), $C_{10}H_8$,—is a hydrocarbon product formed during the manufacture of ordinary coal gas.

Chemically, it is one of the benzene derivatives, being formed by the union of two benzene groups in an overlapping ring. (See *ante*, page 195). When redistilled, it crystallizes in colorless, rhomboid plates, of slightly tarry but strong odor, and burning, aromatic taste: insoluble in water, soluble in 15 of alcohol, very soluble in boiling alcohol, ether, chloroform, carbon disulphide, and fixed or volatile oils. It is seen frequently in the form of moulded blocks, under such names as *Alabastrine* and *Camphylene*, for preserving furs and flannels from moths, and for placing in urinals for disinfectant purposes.

The dose of Naphtalin is from gr. ij to gr. viij, up to gr. lxxx per diem for adults;—and for children gr. j to gr. iij, every three hours. Being quite insoluble in water it must be given in emulsion, or as a powder with sugar in wafers or capsules. It is best flavored with oil of bergamot.

Derivatives.

Naphtol, *Beta-(or Iso-)naphtol*, $C_{10}H_7OH$,—a phenol occurring in coal-tar, but usually prepared artificially from Naphtalin. It is one of several naphtols, and occurs in colorless, shining, crystalline laminæ, or a whitish, crystalline powder, of faint, phenol-like odor, and sharp taste. Soluble at 59° F. in ¾ of alcohol, and in about 1000 of water, in 75 of boiling water, and very soluble in boiling alcohol, in ether, chloroform, olive oil and petrolatum. Used as ointment, 1 to 5 for adults, but for children should be not over 2 per cent. strength.

Hydronaphtol, $C_{16}H_7OH$, (Unofficial),—glistening, micaceous scales, sparingly soluble in water, freely soluble in alcohol, oils, etc. Used as an antiseptic, and in ointment or powder locally, diluted with oxide of zinc, 1 to 50.

Naphtolum Camphoratum, *Camphorated Naphtol*, *Naphtol Camphor* (Unofficial),—is prepared by heating carefully one part of beta-naphtol with two of camphor; the product being a homogeneous, oily fluid, which is insoluble in water, and decomposes readily on exposure to light and air. Used as parenchymatous injection, the undiluted fluid being well borne, or in Olive oil, in doses of ♏ij–v.

PHYSIOLOGICAL ACTION.

NAPHTALIN is destructive to all forms of low life, and hence is antiseptic in a high degree, but must be intimately mixed with the substances upon which it is to act. Internally it is a stimulant expectorant of decided power, and disinfects the contents of the intestinal canal. Being so sparingly soluble, but little of it is absorbed, and hence it does no injury to the organism. What is taken up by the blood is excreted by the urine, partly unchanged, partly as naphtol and perhaps some as phenol. NAPHTOL is more easily absorbed, and causes vomiting, hematuria, convulsions and unconsciousness. HYDRONAPHTOL is a powerful and non-irritating antiseptic, non-poisonous, non-corrosive, freely soluble in alcohol, glycerin, fixed oils, etc., in cold water, 1 to 2000; and in hot water 1 to 100, precipitating as the water cools, but leaving a saturated solution of 1 to 1000, which is perfectly inhibitive of the germs of putrefaction in all putrescible fluids (Levis). The claims made for it are that it is 12 times as effective as carbolic acid, 30 times as potent as salicylic acid, 60 times as efficient as boric acid, 600 times as antiseptic as alcohol, and that it is entitled, as a true antiseptic, to stand next to mercuric chloride in the comparative tables (Levis).

THERAPEUTICS.

NAPHTALIN is employed as an antiseptic for the intestinal canal in typhoid fever, diarrhœa, both acute and chronic, tubercular diarrhœa, dysentery, etc. It renders the urine aseptic and may be employed in vesical catarrh. It is also used internally for humoral asthma, verminous affections, and the chronic pulmonary catarrh of the aged. It has recently come into prominence as an all-round anthelmintic, having been given for all kinds of intestinal worms, with prompt and complete results invariably obtained (Mirowicz). In pertussis the best possible results have been obtained from the burning of this agent in the patient's room; giving force to the belief that the well-known benefit resulting from taking children to gas-works for whooping-cough, is due to the naphtalin fumes rather than to the gas-tar. Locally, Naphtalin has high value as an antiseptic for indolent ulcers, sloughing wounds, open cancers, pus cavities, etc. Painted over organic remains it effectually prevents the ravages of insects. NAPHTOL is employed like tar for therapeutic action upon the skin in hyperidrosis, scabies, eczema and local sweating, in ½ to 5 per cent. alcoholic solution, or as a 10 per cent. ointment. HYDRONAPHTOL is also highly esteemed for antiseptic purposes generally by those who have used it, and is of benefit as an external application in many skin diseases. Its non-toxic and non-irritant qualities render it the most useful and most generally available of the three.

Camphorated Naphtol has been employed hypodermically in tuberculous adenitis, with permanent improvement in nine cases, and improvement in six others, out of a series of 32 cases so treated by Reboul, of Marseilles. In five cases of tuberculosis of the testis, so treated by the same observer, very gratifying results were obtained; the injection appearing to be perfectly harmless, and to act beneficially, both locally and generally. It has also been extensively used in the irrigation of joints, bony cavities, tendinous sheaths, cold abscesses in the pleural and uterine cavities, and also in tuberculosis of the bladder: all which localities seem to bear the undiluted fluid well. (Squibb.)

NUX VOMICA,—is the seed of *Strychnos Nux-vomica*, an East India tree of the nat. ord. Loganiaceæ, having white, funnel-shaped flowers, and a fruit about the size of an orange, with many seeds in a juicy pulp. The seeds are flattened and nearly circular, about one inch in diameter, ashy-gray in color, covered with short, satiny hairs, internally translucent, tough and horny, with a large cavity, inodorous, taste intensely bitter. It contains two alkaloids, *Strychnine*, 0.2 to 0.5 per cent., and *Brucine*, 0.1 to 1.0 per cent., with 0.1 crystalline acid, *Igasuric* or

Strychnic Acid, and a yellow coloring matter, a concrete oil, gum, starch, wax, earthy phosphates, etc. A third alkaloid, *Igasurine*, is claimed to exist by some authorities and is denied by others.

Preparations.

Extractum Nucis Vomicæ, *Extract of Nux Vomica*,—has of total alkaloids 15 per cent. Dose, gr. ⅛–j.

Extractum Nucis Vomicæ Fluidum, *Fluid Extract of Nux Vomica*,—has 1½ per cent. of total alkaloids. Dose, ♏ j–v.

Tinctura Nucis Vomicæ, *Tincture of Nux Vomica*,—has 0.3 per cent. of total alkaloids. Dose, ♏ v–xxx.

Strychnina, *Strychnine*, $C_{21}H_{22}N_2O_2$,—is an alkaloid prepared from Nux Vomica, Ignatia, and other plants of the order Loganiaceæ; crystalline, intensely bitter even in 1 to 700,000 solution, of alkaline reaction, soluble in 7 of chloroform, 110 of alcohol, 6700 of water, almost insoluble in ether. It is a constituent of Ferri et Strychninæ Citras, and of Syrupus Ferri Quininæ et Strychninæ Phosphatum. Dose, gr. $\frac{1}{60}$–$\frac{1}{20}$.

Strychninæ Sulphas, *Strychnine Sulphate* $(C_{21}H_{22}N_2O_2)_2H_2SO_4+5H_2O$,—crystalline, efflorescent, odorless, of intensely bitter taste even in 1 to 700,000 solution, neutral reaction, soluble in 50 of water and 109 of alcohol at 59° F. Dose, gr. $\frac{1}{60}$–$\frac{1}{20}$.

Brucina, *Brucine*, $C_{23}H_{26}N_2O_4$ (Unofficial),—colorless prisms, pearly flakes, or masses, soluble in water, less so in alcohol; as compared with Strychnine it is less bitter, 12 times weaker and three times slower physiologically. Is thought to be a compound of strychnine and resin, corresponding with the other alkaloid both physiologically and therapeutically. Is seldom used. Dose, gr. $\frac{1}{10}$–$\frac{1}{5}$.

PHYSIOLOGICAL ACTION.

The action of Nux Vomica is that of its alkaloid Strychnine. In small doses, it is a bitter tonic, stimulates respiration, secretion, appetite and digestion, and sharpens the vision. It increases peristalsis, stimulates both the motor and the inhibitory apparatus of the heart, and raises the arterial tension by stimulating the vaso-motor centres, thus contracting the arterioles, though by full doses the arterioles are relaxed. By a full dose (Strychnine, gr. $\frac{1}{16}$), the pupils are dilated, the limbs jerk, respiration becomes spasmodic and the lower jaw stiff; a sensation of cerebral tension, sudden shuddering and anxiety follow, the face wearing an unmeaning smile. A toxic dose (Strychnine gr. ½ for an adult) on an empty stomach quickly produces heightened reflexes; tonic spasms, especially of the extensor muscles, on the least irritation quickly succeed each other with intervals of repose, resulting after two or three hours at most in death by asphyxia, from tetanic fixation of the muscles of respiration, consciousness being preserved until carbonic acid narcosis sets in.

Strychnine exalts all the functions of the spinal cord,—reflex, motor, vaso-motor and sensory,—the latter being the least affected. It has a selective action on the large multipolar ganglia in the anterior columns, which it first stimulates and then paralyzes by over-stimulation. A large dose destroys the spinal functions as by one blow. It does not affect the brain directly. Thebaine, one of the alkaloids of Opium, is a powerful spinal exaltant and acts very similarly to Strychnine.

From the spasms of tetanus those of Strychnine may be differentiated by their intermittency, the former being constant. Moreover, the meaningless smile, the less marked trismus, the absence of a wound, and the rapid course of the symptoms, all point to the action of Nux Vomica.

The excretion of Strychnine takes place very slowly, and by the urinary, salivary and cutaneous channels. Rapidly absorbed but very slowly excreted, it accumulates in the system if even a small dose be frequently repeated.

On the eye Strychnine has marked effects, augmenting the excitability of the retinal elements, increasing the sharpness of vision and enlarging the visual field.

Antidotes, Antagonists and Incompatibles.

The antidote is Tannic Acid to form the very insoluble tannate, or a soluble salt of Iodine. Then emetics or the stomach pump, followed by perfect quiet, which is very important. Antagonists are Chloral, Tobacco, Chloroform or Ether inhalations, and Potassium Bromide, the latter being almost too slow of action to be of much use in practice. The Oil of Chamomile should prove of value, owing to its power over reflex excitability. Hydrastinine has been used successfully, in doses of gr. j of the hydrochlorate, hypodermically. The bladder must be frequently evacuated to prevent re-absorption of the poison, and artificial respiration maintained as necessary.

Incompatibles are Bromides, Chlorides and Iodides in the same solution, the Strychnine being precipitated as hydrobromate, hydriodate, etc.

THERAPEUTICS.

Nux Vomica and its chief alkaloid, Strychnine, are exceedingly useful remedies, having a wide range of therapeutic efficacy. They are chiefly employed as stomachic tonics, and as stimulants to the heart and the respiratory apparatus, as also to the muscular and nervous systems. As the quantity of Strychnine in Nux Vomica varies greatly, it is best to use the alkaloid when its physiological action is desired, as more definite dosage may thus be obtained. The tincture in 5-drop doses is excellent in atonic dyspepsia and gastric catarrh, especially in drunkards, and in constipation from atony of the bowels it may be given in 10-drop doses with good results, not as a purgative but to increase peristalsis. The extract is much used in laxative pills for habitual constipation. In the vomiting of pregnancy the tincture is frequently an efficient remedy, and in the vomiting of phthisis Strychnine is one of the very best agents. In the condition clinically known as that of torpid liver, where the stools are of pale color and very offensive odor, showing absence of bile therein, the tongue coated with a thick, perhaps yellowish fur, and the patient complaining of headache, lassitude, anorexia, and a bad taste in the mouth; small doses of Strychnine (gr. $\frac{1}{60}$) twice or thrice daily, will frequently act as well as a mercurial, restoring the bile to the stools, and correcting the other symptoms. Epidemic diarrhœa and dysentery are often controlled by Strychnine, and in anæmia and chlorosis it is an invaluable remedy, especially when combined with iron and quinine. In intermittents, as an adjunct to quinine, it is always useful; and in neuralgiæ, especially visceral neuralgia, and tetanus of the idiopathic type, it is highly efficient.

Nux Vomica is a most valuable remedy in impending cardiac failure from almost any cause. Even with the pulse imperceptible, the extremities cold and death apparently imminent, the administration of a minim of the tincture, in a teaspoonful of water every five minutes, has often brought about a renewal of the cardiac contractions after five or six doses, with eventual recovery. In bronchial and other forms of asthma, especially those of neurotic origin; in dyspnœa with palpitation of the heart, due to functional cardiac disturbance in hysterical subjects; in irregular cardiac action and overaction of the heart, in hypochondriasis, and for the nervous movements accompanying the pregnant state, similar small doses of Nux Vomica, frequently repeated, are remarkably efficient.

The undoubted action of Nux Vomica on the pneumogastric makes it a most valuable remedy in all sorts of coughs, whether due to bronchitis or pneumonia, phthisis, emphysema, etc., but it is particularly efficient in coughs of neurotic origin, such as periodical cough, night-cough, and paroxysmal laryngeal cough without lung or bronchial symptoms, and characterized by a persistent tickling sensation in the throat. In these affections drop-doses of the tincture frequently repeated will be found to be much more satisfactory than larger doses at longer intervals.

Local paralyses of various forms are well treated by the hypodermic injection of Strychnine into the affected muscles, and diphtheritic paralyses are almost invariably cured by its internal administration. It is an excellent remedy in hemiplegia when degeneration has not yet set in, and when the paralyzed muscles are completely relaxed; but it is of no avail in recent cases, nor when the muscles have lost electrical contractility. In amaurosis from lead, tobacco or alcohol, it has proved remarkably useful, and in the dyspnœa of pulmonary affections it may be employed with benefit as a respiratory stimulant. Strychnine is a physiological antagonist to Chloral, Physostigmine and Morphine, and may be carefully administered in poisoning by these substances, while the ordinary methods are also employed.

In many eye diseases Strychnine is injected into the tissues about the temple with great benefit, especially in amblyopia due to functional disorder of the retina without lesions, and in atrophy of the optic nerve. Used in the same manner it is highly recommended in infra-orbital neuralgia, and in other neuralgiæ characterized by debility and anæmia.

Strychnine is undoubtedly of great service in the treatment of alcoholism, as has been shown by the published evidence of Russian, English and French practitioners for many years. Administered hypodermically, in doses of gr. $\frac{1}{80}$—$\frac{1}{20}$ of the nitrate four times daily, and less frequently after the first week, it removes the craving for stimulants, and counteracts the vaso-motor paralysis to which most of the injurious effects of alcohol are due. It is probably a true antagonist to the action of alcohol on the human system, and is the really efficient constituent of the innumerable "cures" which are advertised so extensively of late years for dipsomania.

The following extracts, from a letter in the author's possession, written by Dr. Portugaloff, of Samara, Russia, under date of Sept. 2, 1891, are interesting evidence of the above statements.

"I have first and foremost to state that the use of Strychnine in the treatment of alcoholism is no discovery of mine. In all the articles that I have ever written upon the subject I have always pointed out that the credit of the discovery belongs to the English and French Doctors Lutton, Dujardin and Beaumetz. (*sic.*)

. . . . "Convinced that all forms of drunkenness are but forms of disease, with perhaps a basis of vice, I have, during a period of five years treated about 500 patients, suffering from various forms of alcoholism, entirely by hypodermic injections of strychnine. . . . I prepare the solution by taking one grain of strychnine, and dissolving it in 300 drops aquæ destillatæ, and commence by injecting hypodermically 10 drops of this solution morning and evening in the vicinity of the liver or stomach. I do not order the patient at once to discontinue drinking. I prefer that he should voluntarily leave it off, and that alcohol should become distasteful to him. It not infrequently happens that I make from one to five injections during the first two days without results; but I patiently wait, convinced that in two or three days the desired effect will be produced. If the patient, after two or three days' treatment, voluntarily gives up drinking and states that he has no desire for it any longer, I continue the injections but only once a day, in the morning. The total number of injections range from 12 to 20, and decrease in strength from 10 drops to 5. This is the whole treatment. To a colleague I freely confess that I have had cases where patients, in spite of daily injections having been continued for 5 or 6 days, nevertheless continued to drink as much as ever. In such cases I have discontinued the treatment altogether; but I have always felt sure that if in such obstinate cases the patient could be isolated, and all possibility of obtaining alcohol removed,—which would be easy in a "Home for Inebriates,"—cure would certainly follow.

"Then I have cases of relapse. Patients who once a year return to their old bad habits, but who, on such occasions, always come to me for a repetition of the treatment, which invariably sets them right again for another year. . . . So you see after all, my dear colleague, that there is nothing peculiar or mysterious about it. . . . I have no knowledge of the English language, and am able to answer your letter through the kindness of an English friend of mine, Mr. Bezant, who has translated this letter from the original Russian.

"In conclusion, I would strongly advise you to give this treatment a trial, nothing fearing, and your efforts will, I know, be crowned with success. With sentiments of high regard, I remain, my dear colleague, yours very fraternally, PORTUGALOFF."

NYMPHÆA ODORATA, Sweet-scented Water-lily, (Unofficial),—is a well-known American plant of the nat. ord. Nymphæaceæ, the root of which is very bitter and highly astringent, containing much Gallic and Tannic Acids, to which its actions and uses are due. A decoction of ℥j to the pint may be used in doses of ℥ss–j, or a fluid extract in doses of ʒss–j. For the physiological actions and therapeutics of this vegetable astringent see TANNIC ACID, *ante*, page 81.

OLIVÆ OLEUM, Olive Oil (*Sweet Oil, Salad Oil*), is a fixed oil expressed from the ripe fruit of *Olea europæa*, the olive tree (nat. ord. Oleaceæ), which is cultivated in southern Europe, California and Australia. It is a pale-yellow or greenish-yellow, oily liquid, of nutty, oleaginous taste, and neutral reaction, sparingly soluble in alcohol but readily soluble in ether. Sp. gr. about 0.916.

Olive Oil consists of 72 per cent. of *Olein* (a fluid oil) and 28 per cent. of *Palmitin* (a solid oil or stearopten), which are compounds of the base *Glyceryl*, C_3H_5, with *Oleic Acid*, $C_{19}H_{34}O_2$, and *Palmitic Acid*, $C_{17}H_{31}O_2$. respectively. It is frequently adulterated with cheaper fixed oils, especially poppy oil, lard oil, and cotton-seed oil, quantities of the latter being exported every year to Italy, whence it is returned to us as Olive Oil under a French label. (See GOSSYPIUM.) It is an ingredient of Ceratum Cetacei, Emplastrum Plumbi, and Unguentum Diachylon, and is the source of the official Soap. Dose, ℥ ss–j.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Externally used Olive Oil is a good protective from the air, and renders the skin soft and flexible. If rubbed into the integument it is absorbed by the lymphatics and is directly nutritive in effect. Internally it is also nutritious and mildly laxative, and in quantity acts as a protective to the mucous membrane against acrid or poisonous substances. Like other oils it is partly emulsified, partly saponified in the intestines, its glycerin being set free and its fatty acids combining with the free alkalies to form soap, which with the emulsion forms the molecular basis of the chyle, entering the blood through the lacteals and being finally oxidized into carbonic acid and water, though an excess will appear unchanged in the urine. Oils are therefore a food within certain limits, increase the fat of the tissues, furnish heat and force, and save the waste of nitrogenous tissue, but are unable of themselves to support life.

Olive Oil possesses no very marked therapeutic power above any other bland oil or fat. It is a good laxative for infants administered internally, and may be used as an enema followed by warm water. Its chief employment is as a local application. Applied to burns and acute inflammations of the skin it is an excellent protective, coating the surface and excluding the air; and as an ingredient of liniments it acts as a diluent for more active agents. It is used to facilitate friction over enlarged or stiff joints, and in the desquamative stage of scarlet fever is a very useful and grateful application. As an antidote in corrosive poisoning it acts mechanically by protecting the mucous membrane of the stomach and preventing absorption. In pharmacy its bland, unirritating qualities have procured its common employment as an ingredient of liniments, plasters, ointments and cerates, but the foreign article is so frequently adulterated with inferior oils that Cotton-seed Oil is now directed in its place in many official preparations.

OPIUM,—is the concrete, milky exudation, obtained by incising the unripe capsules of the White Poppy, *Papaver somniferum*, an annual herb of the nat. ord. Papaveraceæ, indigenous to Western Asia but cultivated extensively elsewhere. Its capsules are globular, two or three inches in diameter, and are crowned by a sessile, stellate stigma, which distinguishes them from Colocynth and Bael fruits. Opium occurs in irregular lumps or cakes, of dark-brown color, sharp, narcotic odor, and bitter taste; and in its normal, moist condition should yield not less than 9 per cent. of Morphine when assayed by the official process.

COMPOSITION OF OPIUM.

Opium contains 17 alkaloids, 2 neutral substances and 2 organic acids, together with sugar, gum, resin, pectin, extractives, odorous principles, water and other constituents of plants. Its most important alkaloids are the following:—

Morphine, $C_{17}H_{19}NO_3$,—5 to 20 per cent.—the principal alkaloid, occurring in the drug in the form of the tribasic meconate. Its properties are anodyne, hypnotic and narcotic. From it by a process of dehydration by heat and hydrochloric acid is prepared the artificial alkaloid *Apomorphine*, a powerful emetic. (See *ante*, page 122.)

Codeine, $C_{18}H_{21}NO_3$,—0.3 to 0.5 per cent.,—is calmative and when pure a not very active alkaloid, but is frequently contaminated with other alkaloids. *Apomorphine* may be prepared also from it.

Narcotine, $C_{22}H_{23}NO_7$,—2 to 10 per cent.,—is antiperiodic and a tetanizer, but wholly devoid of narcotic properties.

Thebaine or *Paramorphine*, $C_{19}H_{21}NO_3$,—0.15 to 0.20 per cent.,—is a powerful spinal exaltant and tetanizer, resembling Strychnine in its action.

Narceine, $C_{22}H_{29}NO_9$,—0.02 per cent.,—closely resembles Morphine in action, but is probably more hypnotic, and is not followed by many of the disagreeable after-effects of Morphine. It is extremely difficult to obtain this alkaloid pure.

Papaverine, $C_{21}H_{21}NO_4$,—1 per cent.,—is reported inert on man by some observers, a narcotic and convulsant by others.

Other Alkaloids at present acknowledged are—Cryptopine, Pseudomorphine, Protopine, Hydrocotarnine, Laudanine, Codamine, Rhœadine, Meconidine, Laudanosine, Lanthopine and Gnoscopine. Many of them are probably to be regarded as derivatives of Morphine.

Besides the above-named alkaloids the most important of the constituents of Opium are the following acids and neutral principles, viz.:—

Acids are—*Meconic Acid*, $C_7H_4O_7$, 4 per cent., and *Lactic Acid*, $C_3H_6O_3$, 1¼ per cent., which exist in combination with the alkaloids as meconates, bimeconates, etc. The second acid is generally called *Thebolactic*, but has been recently shown to be identical with lactic acid.

Neutral Principles are—*Meconin*, $C_{10}H_{10}O_4$, 0.01 per cent., is white, crystalline, neutral, but very acrid; *Meconoiosin*, $C_8H_{10}O_2$, also crystalline, and *Porphyroxin*, which is now said not to be a proximate principle but a very complex combination of several alkaloids.

Smyrna, Turkey or Levant Opium is the best grade. Constantinople Opium is of uncertain quality, while of the other varieties in the market Egyptian, Persian and Indian samples are those most frequently met with. All varieties are more or less adulterated with fruits and leaves of other plants, starch, pitch, clay, wax, gum, liquorice, etc.

Preparations of Opium.

Opii Pulvis, *Powdered Opium*,—is Opium dried at a temperature not exceeding 185° F., and reduced to a very fine powder. It should contain not less than 13 nor more than

15 per cent. of crystallized Morphine, when assayed by the official process. Dose, gr ss–iij, an average adult dose being about 1 grain.

Opium Deodoratum, *Deodorized Opium* (*Denarcotized Opium*),—is powdered Opiu freed from the constituents thereof which are soluble in Ether, namely Narcotine and th odorous principles, which are supposed to cause the unpleasant after-effects of the drug It should yield 14 per cent. of Morphine, and is a good preparation, being a purifie opium with a fixed morphine standard. The proprietary article named *Svapnia* is similar preparation. Dose, gr. ss–iij; an average adult dose being about 1 grain.

Extractum Opii, *Extract of Opium,*—an aqueous extract containing 18 per cent. Morphine. It is freed from some disturbing principles which are insoluble in wate Dose, gr. ¼–ij.

Pilulæ Opii, *Pills of Opium,*—each contains about gr. j of powdered Opium, wit Soap. Dose, j–iij.

Tinctura Opii, *Tincture of Opium* (*Laudanum*),—Opium-strength 10 per cent average Morphine-strength gr. vj (equaling gr. vijss of the Sulphate) to the fl ℥. Ha about gr. xliv of Opium to the ℥. ♏ xj (gtt. xxij) = gr. j of Opium or gr. ⅙ of Mo phine Sulphate. Sixty minims yield on the average 120 drops. Dose, ♏ v–xxx, as pe effect desired.

Tinctura Opii Deodorati, *Tincture of Deodorized Opium,*—an aqueous extract prepared and shaken with ether, which being separated the residue is dissolved in wate and enough alcohol is added to preserve it. An excellent liquid preparation, being fre from all the noxious and useless ingredients, soluble in alcohol and ether. *McMunn Elixir* is a similar preparation, so also is a recent nostrum named *Papine.* Opium strength 10 per cent., average Morphine-strength gr. vj to the fl ℥. Dose, as Tinct. Opi Drops of this preparation nearly equal minims.

Vinum Opii, *Wine of Opium* (*Sydenham's Laudanum*),—Opium-strength 10 pe cent., with the aromatics Cinnamon and Cloves of each 1 per cent., in Alcohol and Whit Wine. A vinous tincture decreased somewhat in strength from the wine of 1870. Dos as Tinct. Opii. Drops of this preparation are larger than those of the tincture.

Acetum Opii, *Vinegar of Opium* (*Black Drop*),—Opium-strength 10 per cent., wit Nutmeg and Sugar in Dilute Acetic Acid. Is now ⅓ weaker than formerly, having th same strength and dose as Tinct. Opii.

Tinctura Opii Camphorata, *Camphorated Tincture of Opium* (*Paregoric*),—has Powdered Opium 4, Benzoic Acid 4, Camphor 4, Oil of Anise 4, Glycerin 40, Dilute Alcohol to 1000. ℥ss contains nearly one grain of powdered Opium, and is about $\frac{1}{20}$ the strength of Laudanum. Dose, for an infant gtt. v–xx, for an adult ʒj–iv. Is a ingredient of Mistura Glycyrrhizæ Composita.

Emplastrum Opii, *Opium Plaster,*—Extract of Opium 6, Burgundy Pitch 18, Lea Plaster 76, Water 8.

Pulvis Ipecacuanhæ et Opii, *Powder of Ipecac and Opium* (*Dover's Powder*),— has of Ipecac 10, Powdered Opium 10, Sugar of Milk 80, rubbed together into a ver fine powder. Dose, gr. v–xv; ten grains equalling 1 grain each of Ipecac and Opium.

Tinctura Ipecacuanhæ et Opii, *Tincture of Ipecac and Opium,*—has of Tincture Deodorized Opium 100, evaporated to 80, Fluid Extract of Ipecac 10, Diluted Alcoh to 100. Is intended to represent Dover's Powder in liquid form. Dose, ♏ v–xv.

Trochisci Glycyrrhizæ et Opii, *Troches of Glycyrrhiza and Opium,*—each troch contains of powdered Opium gr. $\frac{1}{12}$, with Extract of Glycyrrhiza, Acacia, Sugar and O of Anise. Dose, j–iv.

Liquor Opii Compositus, *Compound Solution of Opium* (Squibb), Unofficial,—h the same strength as the official tinctures, namely gr. vj of Morphine (equalling gr. vijss the Sulphate) to each fluidounce. ♏ xvj = gr. ¼ of Morphine Sulphate.

Tinctura Opii Composita, *Compound Tincture of Opium, Squibb's Diarrhœa Mi ture* (Unofficial),—has of Tinct. Opii, Spt. Camphoræ and Tinct. Capsici ℥j of eac Purified Chloroform ʒiij, Stronger Alcohol q. s. ad ℥v. Each fl ʒ or teaspoonful co tains about 100 drops or ♏ xij of each of the first three ingredients and ♏ ivss or drops of Chloroform. Dose, for infants gtt. j–x, for children gtt. x–xxx, for adults ʒj.

[NOTE.—According to the U. S. Pharmacopœia of 1890 the official dried Opium shoul contain 13 to 15 per cent. of Morphine instead of 10 per cent. as required by the Pharm copœia of 1870. The liquid preparations, except Paregoric, are now directed to be the uniform Opium-strength of 10 per cent., and to yield, on being assayed, 1.3 to 1 per cent. of crystallized morphine, making the Wine less strong by 2 per cent., th Acetum fully ⅓ less in strength, and the other liquid preparations stronger by ½ in Mo phine than formerly. So that if the full anodyne dose of Tincture (1870) be taken at 24 minims, equalling gr. ¼ of Morphine Sulphate, the corresponding dose under the present system will be 16 minims.]

Preparations of Morphine.

Morphina, *Morphine*, $C_{17}H_{19}NO_3 + H_2O$,—white, prismatic crystals, or fine needles, or a crystalline powder, odorless, of bitter taste and alkaline reaction, almost insoluble in water, soluble in 300 of alcohol. Its comparative insolubility makes the salts preferable for use, and as a very small proportion of acid neutralizes it, the dosage is about the same for the alkaloid and its salts, viz., gr. 1/20–gr. j. Gr. ¼–⅙ is about equal to one grain of Opium of medium Morphine-strength. [Compare *Morphinæ Sulphas*, below.]

Morphinæ Acetas, *Morphine Acetate*,—a white, crystalline or amorphous powder of faintly acetous odor, bitter taste, neutral or faintly alkaline reaction, soluble when fresh in 2½ of water and in 47.6 of alcohol at 59° F. Dose, gr. 1/20–j.

Morphinæ Hydrochloras, *Morphine Hydrochlorate*,—white, feathery crystals of silky lustre, of bitter taste and neutral reaction, soluble in 24 of water and in 62 of alcohol at 59° F. Dose, gr. 1/20–j.

Morphinæ Sulphas, *Morphine Sulphate*,—white, feathery, acicular crystals of silky lustre, of bitter taste and neutral reaction, soluble in 21 of water and in 702 of alcohol at 59° F., and in 0.75 of boiling water. Contains about 80 per cent. of Morphine. Dose, gr. 1/20–gr. j; 1/20–⅛ being a small dose for an adult, ⅛–¼ a moderate one, ¼–½ a full dose, and ½–j a large one.

Pulvis Morphinæ Compositus, *Compound Powder of Morphine* (*Tully's Powder*),—has of Morphine Sulphate 1 part to 19 of Camphor and 20 each of Liquorice and Calcium Carbonate. A similar preparation to Dover's Powder minus the Ipecac. Dose, gr. v–xv, ten grains containing gr. ⅙ of Morphine Sulphate.

Trochisci Morphinæ et Ipecacuanhæ, *Troches of Morphine and Ipecac*,—each troche contains gr. 1/40 of Morphine Sulphate with about gr. 1/12 of Ipecac, also Sugar, Oil of Gaultheria and Mucilage of Tragacanth. Dose, one every hour or so, cautiously with children.

Injectio Morphinæ Hypodermica, *Hypodermic Injection of Morphine* (B. P.),—is a solution of the Acetate, containing gr. j in each ten minutes, being thrice as strong as Magendie's solution. Dose, ♏ j–iij.

Liquor Morphinæ Sulphatis, *Solution of Morphine Sulphate*, *Magendie's Solution* (Unofficial),—has gr. xvj of Morphine Sulphate in each fl ℥ or gr. j in ♏ xxx, or gr. ¼ in ♏ vijss. If made with Benzoic Acid, the solution will not spoil, and is not irritant hypodermically. The same result is attained by adding of Carbolic Acid, ♏ iij to the ℥.

Tinctura Chloroformi et Morphinæ, *Tincture of Chloroform and Morphine*, (B. P.),—a substitute for Chlorodyne. See *ante*, page 185, and also the table on Chlorodyne in the Appendix.

Oleatum Morphinæ, *Oleate of Morphine* (Unofficial),—Morphine-strength 10 per cent. with Oleic Acid 90. For local use.

Apomorphine is described on page 122 *ante*.

Preparations of Other Alkaloids.

Codeina, *Codeine*, $C_{18}H_{21}NO_3 + H_2O$,—white or yellowish-white, rhombic prisms, efflorescent in warm air, of bitter taste and alkaline reaction, soluble in 80 of water at 59° F. and in 17 of boiling water, very soluble in alcohol, chloroform and ether. This alkaloid is official. Dose, gr. ss–ij, but gr. ⅙ has caused alarming symptoms in children.

The *Phosphate* is sufficiently soluble for hypodermic use, and comparatively unirritant. One part in twenty of water forms the usual solution for hypodermic employment.

Narcotinæ Hydrochloras, *Narcotine Hydrochlorate* (Unofficial),—Dose, gr. ij–x, as an antiperiodic.

Children bear Opium badly, and for them its proportionate dosage should be much below that for other agents. Morphine should not be given to children below 10 years of age, and never hypodermically to those beneath the age of 15. Opium given to a nursing mother will affect the child, being partly excreted in the milk.

Reactions and Incompatibles.

An aqueous or alcoholic preparation of Opium reddens litmus paper (free meconic acid);—gives a deep red color with Ferric Chloride (meconic acid);—forms precipitates with Lead Acetate and Subacetate, Silver Nitrate, Zinc, Copper, and Arsenic (meconates, sulphates and coloring matter);—forms a precipitate with tincture of Galls or astringent preparations (tannates of morphine and codeine); and becomes turbid with the fixed Alkalies, Carbonates, Alkaline Earths, and Ammonia (precipitated morphine and narcotine).

Tests for Morphine.

Nitric Acid produces a blood-red, turning orange, then yellow, then disappearing. Test-solution of Ferric Chloride gives a blue color changing to green with excess of the reagent, and destroyed by free acids or alcohol, but not by alkalies. Iodic Acid liberates Iodine which may be tested by starch. Vaughn has shown that certain intestinal ptomaines will give the same reactions with the same reagents.

PHYSIOLOGICAL ACTION.

Opium is analgesic, hypnotic, antispasmodic, diaphoretic and narcotic. It first stimulates and afterwards depresses the cerebrum, heart and respiratory apparatus, and is classed among the cerebral depressants.

In medium dose (gr. j) it arrests all the secretions except the milk and sweat, the latter being increased; producing dryness of the mouth and throat, retarded digestion from stoppage of the gastric juice, and decided loss of appetite. The action of the heart is increased, arterial tension raised and the pupils slightly contracted. The cerebral faculties are stimulated by increased blood-supply to a pleasant activity, ideas follow each other rapidly through the mind, and an exhilaration bordering on mild intoxication is experienced, succeeded by a calm of variable length. Sleep generally follows, disturbed, however, by dreams, and after waking, headache, malaise, constipation, digestive disturbance and some depression result. The conductivity of the nerves is not affected. Frequently the stage of mental activity is absent, but in persons habituated to the use of Opium it is usually well marked. In some subjects a lengthened period of calm repose takes the place of sleep, in others neither calm nor sleep occurs, but the stimulant action of the drug prevails, the spinal functions as well as the cerebral are exalted, and great restlessness is the result.

In full dose (gr. iij–v) the same symptoms are produced but in greater intensity; the stage of stimulation is much shorter, digestion is arrested, nausea and vomiting produced, also profuse diaphoresis. The conductivity of the nerves is more or less impaired, the heart and circulation depressed, oxidation being interfered with and the body-temperature lowered. The pupils are contracted by stimulation of the motor oculi through the basal ganglia, intense pruritus is produced, especially at the nose, and often spasmodic retention of the urine. Profound sopor soon comes on, with irregular and slow respiration, but in some subjects this is replaced by coma-vigil and delirium. After-effects are nausea, depression, constipation, racking headache, vertigo, anorexia, nasal pruritus, and fetid pathological secretions.

A toxic dose produces cold and clammy sweat, very slow pulse, slow and stertorous respiration gradually becoming feeble and irregular, cyanosed face, abolished reflexes, coma gradually deepening, the pupils minutely contracted but dilating as the end approaches, and finally death by paralysis of the respiratory centre due to direct action on the medulla. Post-mortem shows only a wet brain, congested lungs, and engorgement of the venous trunks and of the right heart.

The principal action of Opium is exerted upon the nervous system, first affecting the cerebral convolutions, which are briefly stimulated and soon depressed,—next the perceptive and sensory centres in the higher brain are more or less blunted, and the conductivity of the afferent nerves impaired,—soon the ganglia at the base of the brain are involved, evinced by the contraction of the pupils, vomiting, and slowing of respiration,—the cardiac, vascular and other centres are depressed, but to a less degree than the respiratory and perceptive,—the gray matter of the cord, at first stimulated, as shown by the increase of reflex excitability, is also depressed, and locomotion becomes difficult, the motor nerves becoming paralyzed from the centre outwards, but muscular irritability is never lost. Death generally occurs by paralysis of the respiratory centre, rarely by sudden cardiac failure.

Metabolism is greatly reduced in activity by Opium, the quantity of urea excreted being markedly lessened, and the biliary and glycogenic functions of the liver being affected, resulting in whitish stools, perhaps jaundice, and certainly decided decrease of the sugar excreted by diabetics, when the drug is given by the stomach.

On the uterine and generative functions Opium exerts a marked influence, stopping menstruation if its use be continued, and in men causing impotence. Both male and female functions, however, return as soon as the drug is discontinued, but the female organs of generation suffer atrophy from its long continued use. In one case, intra-uterine measurements, taken during a period of two years, showed a diminution in the size of the cavity from 5.1 to 1.9 inches.

The hypnotic action of Opium is now believed to be produced by a double influence, (1) on the vascular system, causing anæmia of the brain, (2) on the cerebral cells, diminishing their activity, and consequently lessening their demand for blood. Its constipating action is shown experimentally to be produced by stimulation of the inhibitory nerves of the intestines through the splanchnics.

Morphine acts similarly to Opium in general, being the principal alkaloid therein, but when used alone its influence is not complicated with that of the convulsant alkaloids (Thebaine, Codeine, Narcotine), which must affect to a considerable degree the action of Opium. Consequently, as compared with the latter, Morphine acts more quickly, and for a shorter time, has less influence on the intestines and skin, is less constipating, less stimulating, less convulsant and less diaphoretic, but more sedative, more anodyne and hypnotic and produces more intense pruritus. Its excretion commences quickly but may not be completed for as much as 48 hours, and is effected by most of the secretions, especially by the urine. It is probably retained in the system when the action of the kidneys is defective, and hence when given in renal disease may accumulate with fatal results.

CODEINE may chemically be considered a Methyl-morphine, and like all methyl compounds, has an action like that of Curare, viz.,—a motor-paralyzant. It exalts the spinal cord more than Morphine and affects the cerebrum less, producing muscular tremor in excess of the sedative action. It is anodyne and analgesic, especially to abdominal and pelvic pain, also hypnotic with less general disturbance than is produced by Morphine. It markedly reduces the amount of sugar excreted by diabetics, and has a special sedative influence on the pneumogastric nerve.

NARCOTINE should be named ANARCOTINE, as it has little or no narcotic power. It is a convulsant in animals and an antiperiodic in man.

NARCEINE is said by some observers to be remarkably hypnotic, and free from convulsant action—by others equally deserving of credit it is considered almost inert. This alkaloid is difficult to obtain pure ; hence the samples heretofore used have probably been contaminated with other alkaloids.

THEBAINE is a powerful convulsant, exalting the spinal cord almost like Strychnine and Brucine. It is not used medicinally.

Fatal Doses.

In a child one day old ♏j of Laudanum caused death. A medicinal dose given to a nursing mother proved fatal to the infant. A few drops of Paregoric have killed a child of nine months. In the adult gr. $\frac{1}{6}$ of Morphine in one case, and gr. iv of crude Opium in another, have proved fatal.

Antagonists and Treatment of Poisoning.

Atropine antagonizes the cerebral action of Morphine, also its action on the pupils, respiration, heart and arterial tension, but if given too freely will endanger the case by substituting Belladonna-narcosis for Opium-narcosis. Gr. $\frac{1}{120}$ hypodermically every 15 minutes for three doses, is generally sufficient. *Caffeine* is also physiologically antagonistic, and is generally used in the form of strong black coffee frequently administered. *Potassium Permanganate*, in dose one-half greater than the dose of Morphine taken, is said to be a perfect chemical antidote to morphine in the stomach, destroying it by selective chemical action. Dr. Moor, of New York, is reported to have swallowed 3 grains of morphine sulphate in the presence of several physicians, and then to have taken a solution of 4 grains of potassium permanganate in 4 ounces of water, with the result that no effects of morphine were noticed on him afterwards. The chief indications in Opium-poisoning are—to evacuate the stomach, maintain respiration and keep up the circulation. Faradization of the chest muscles, cold affusion, and artificial respiration are of great value, and evacuation of the bladder is important. Flagellation is a very dangerous procedure, from the exhaustion which may be produced; strong faradic currents are much more efficient. The anode should be placed over the lowest conjoined root of the phrenic nerve—the cathode three inches below the ensiform cartilage, and a little to the left of the median line.

Strychnine is an efficient antagonist to the respiratory paralysis, and may be used in lieu of Atropine, or in connection therewith. *Amyl Nitrite* should also be used when the heart shows signs of failure. *Capsicum*, the tincture, ℥ss–j by injection into the rectum, is said to give almost instantaneous results in antagonizing the stupor of opium poisoning.

THERAPEUTICS.

The chief indications for the use of Opium are (1) to relieve pain from any cause except acute inflammation of the brain,—(2) to produce sleep, particularly in the insomnia of low fevers with delirium, in which the combination of Morphine and Chloral is very efficient,—(3) to allay irritation in the various forms of acute nervous erethism,—(4) to check excessive secretion, as in diarrhœas, dysentery, diabetes, ptyalism, etc.,—(5) to support the system in low fevers and other adynamic conditions, when sufficient food cannot be retained,—(6) as a sudorific, to produce sweating in coryza, etc. It is considered of especial value in any irritation of the stomach, bladder or bronchi, in severe vomiting, both forms of diabetes, gastralgia, colic and muscular spasm. In diabetes mellitus Morphine *per orem* reduces the sugar promptly, but when used hypodermically it has little or no effect thereon, even in the same case. In peritonitis and inflammations of other serous membranes, used freely even to narcotism it has often saved life. In cerebro-spinal meningitis it is the one remedy if given early, before exudation has set in. Cholera morbus and dysentery are efficiently treated by Morphine and Atropine hypodermically (gr. $\frac{1}{8}$ with gr. $\frac{1}{200}$) after the ingesta have been removed by purging. In acute uræmia its use in large doses is recommended by Loomis to control convulsions and promote diuresis, but here it is a dangerous agent. In muscular rheumatism and acute colds Dover's powder as a diaphoretic, conjoined with hot drinks and foot-baths, is old but excellent treatment. In chronic mania and melancholia, nervous prostration and the delirium of fevers, Opium is probably one of the best hypnotics. In acute mania it does not act nearly so well as Hyoscine, and in delirium tremens it should only be used in cases which show great prostration, and then for temporary effects alone, as a stimulant. In chronic melancholia small doses of Opium three times a day give better results than any other treatment. Severe pain from any cause (except cerebritis) is relieved by Opium with an efficiency possessed by no other drug, as the pain of sciatica, neuralgia, lumbago, cancer, renal and hepatic colic from calculi, etc. Cough of harassing and frequent character with but little secretion is best treated by Opium, but when there is profuse expectoration it should not be used, as the lowering of excitability of the respiratory centre which it produces would in such a case be dangerous. In nearly all acute inflammations it is valuable, especially where it becomes advisable to lock up the bowels. Its tranquillizing power over the circulation makes it invaluable in the various forms of hemorrhage, while in that from uterine fibroids and cancer the implanting of the Opium-habit is deserving of serious consideration as a most beneficial measure, as it checks and even stops the bleeding, as soon as established. Dyspnœa from any cause is relieved by Morphine, especially that of cardiac disease. "It gives the power to breathe" (Huchard). In cardiac disease, especially aortic stenosis or insufficiency, with dyspnœa, paroxysms of angina pectoris, or signs of cerebral anæmia,—Morphine hypodermically presents the greatest advantages.

APPLICATIONS OF THE VARIOUS PREPARATIONS.

Intense pain, as from the passage of calculi, is best met by hypodermic injection of Morphine Sulphate in full doses (gr. $\frac{1}{4}$–$\frac{1}{2}$) with Atropine Sulphate (gr. $\frac{1}{100}$). Either the solution of Morphine or the liquid preparations of Opium may be given by the mouth in corresponding doses for the same purpose. Severe pain enables the system to resist the action of Opium, which in such cases should be repeated at short intervals for effect, regardless of dosage.

Superficial pain is often alleviated by the Plaster or by extemporaneous liniments containing Laudanum or some other fluid preparation. It is, however, very doubtful whether such applications are of direct value, as Morphine is not absorbed by the unbroken integument; but the Oleate of Morphine is said to be very penetrating.

To produce sleep the most efficient preparations are the Tinctures, the Solution of Morphine, Pil. Opii and Dover's Powder, in doses corresponding to the degree of insomnia and restlessness present.

Cough is relieved by the two Trochisci, the Tinctures, and by the Solution of Morphine in small doses with Syrup of Wild Cherry or Syrup of Tolu; also by Codeine in the last-named Syrup. Diaphoresis is obtained by the use of Dover's Powder in either of its forms.

Sedative action is obtained by different preparations for different organs. *The stomach* is best affected by the Solution of Morphine in effervescing mixtures, the Extract in a small pill, or Morphine hypodermically over the epigastrium. *The intestines* may be influenced by Laudanum in a starch enema, or internally by Dover's Powder, Pulvis Opii, or Pil. Opii, especially the latter with or without Calomel, as an astringent when the bowel must be paralyzed, as in peritonitis, hernia, intussusception, etc. *The rectum and other pelvic organs* are promptly affected by a suppository of the Extract of Opium, gr. $\frac{1}{4}$ with gr. $\frac{1}{12}$ of the Extract of Belladonna. *The ovaries* and the abdominal and pelvic organs generally are markedly susceptible to the analgesic action of Codeine in doses of gr. j to gr. ij for an adult in severe pain.

ADMINISTRATION.

Probably no drug in the Materia Medica is so useful as Opium, or has so wide a range of application. At the same time no drug requires such careful handling, by reason of the many influences which modify its action and uses. As before pointed out, children are extremely susceptible to its narcotic action, and women are more easily affected by it than men. Many persons are found with idiosyncrasies in respect to Opium, some being easily narcotized, others being remarkably insusceptible to its action, and many suffer from a decided shock after its hypodermic administration, which may even produce alarming symptoms of collapse. In subjects of kidney disease it may accumulate and act more powerfully than expected, and generally it may be said to be *contraindicated* or to be used with great care in alcoholism, congestion of the brain, and advanced disease of the respiratory organs, heart and kidneys.

The conjoint administration with opiates, of the Spiritus Ætheris, Spiritus Ætheris Comp., or Spiritus Ætheris Nitrosi, an equal part with Tinctura Opii Deodorati, will prevent the nausea often excited by the latter, and correct the "drying-up" effects of opium, due to its checking secretion.

Some of the cerebral effects of Opium, as vertigo and mental confusion, are removed by a full dose of Potassium Bromide, others are antagonized by Quinine, and the general intra-cranial effects of the drug are to some extent opposed by Digitalis and Tartar Emetic.

MORPHINE AND ATROPINE are sufficiently antagonistic to each other to make their combination extremely valuable as a therapeutic measure, and their use as mutual antidotes in poisoning by either a most efficient procedure if employed with due precautions. When Morphine is given as a hypnotic or an anodyne, Atropine should always be administered at the same time in the proportion of gr. $\frac{1}{120}$–$\frac{1}{100}$ of the latter to gr. $\frac{1}{4}$ of the former. By this means the anodyne and hypnotic qualities of Morphine are increased, while the nausea and depression with the subsequent dyspepsia and constipation due to it are avoided. Moreover, as in the doses above mentioned Atropine is a cardiac and respiratory stimulant, it will counteract the depressing tendency of Morphine on the heart and respiration in subjects who have undue susceptibility to its action.

ORIGANUM, Wild Marjoram (Unofficial),—is the plant *Origanum vulgare*, a perennial herb of the nat. ord. Labiatæ, native of Europe and America, having a stem branched above, petiolate leaves about an inch long and hairy beneath, pale purple flowers, aromatic, pungent, and bitterish. It contains a Volatile Oil, some tannin, resin, and a bitter principle. The oil was formerly much used and was official, but it is now entirely superseded by the Oil of Thyme. Origanum is an ingredient of Vinum Aromaticum. Dose, ʒj–ij, in infusion.

Origanum is gently tonic, also carminative, stimulant, and emmenagogue. It was formerly much employed as a diaphoretic, etc., but is now rarely administered.

PARALDEHYDUM, Paraldehyde, $C_6H_{12}O_3$, —a polymeric modification of Ethylic Aldehyde, (C_2H_4O),—is the colorless liquid (at ordinary temperatures), obtained by treating Aldehyde with dilute sulphuric or nitric acid; Aldehyde being the oxidation product of alcohol just preceding the formation of acetic acid. When cooled to 32° F.

Paraldehyde solidifies to a crystalline mass, which becomes liquid again at 51° F. It is soluble in 8½ of water, and miscible, in all proportions, with alcohol, ether, and fixed or volatile oils.

The dose of Paraldehyde may be placed at ʒss–ʒijss, but the latter quantity has frequently been exceeded without any ill effects, with no digestive or cerebral disturbances following, nor any unpleasant symptoms resulting, other than a disagreeable odor to the breath. Very few cases of poisoning therefrom, acute or chronic, are recorded. One case, under treatment by Dr. Mackenkie, of Douglas, in the Isle of Man, recovered from a dose of 3½ ounces, after 34 hours of sleep, furnishing "a striking testimony to the safety of Paraldehyde as a hypnotic." The average hypnotic dose for an adult is about ʒjss, given in ℥j of simple elixir.

Physiological Action and Therapeutics.

Paraldehyde is a reliable hypnotic, equal in this respect to Chloral, though its hypnotic action is not so persistent as that of the latter drug, and it requires more frequent repetition to produce sustained sleep. It is also diuretic but not diaphoretic, and is unquestionably safer than Chloral, strengthening and slowing the heart's action, instead of weakening it. Its administration is followed by a well-marked stage of excitement, after which it produces a sound sleep, which is described as "refreshing." It does not interfere with the appetite or digestion, but occasionally causes an erythematous eruption; and may give rise to cerebral congestion and vaso-motor paralysis, if used for any long period of time. A toxic dose paralyzes the medulla and the respiratory centre therein.

As a hypnotic Paraldehyde has been used with benefit in fevers, rheumatism, acute mania, hysteria and insomnia from various causes. Several cases of tetanus have been treated successfully with it, and it has lately been found useful as a diuretic and hypnotic in a case of senile arterial degeneration with double aortic and mitral regurgitant murmurs, mental depression and very marked insomnia and restlessness.

PAREIRA, Pareira (*Pareira Brava*),—is the root of *Chondodendron tomentosum*, a climbing, woody vine of the nat. ord. Menispermaceæ, with very large leaves and grape-like fruit, inhabiting Peru and Brazil. Occurs in sub-cylindrical, tortuous pieces, 4 to 6 inches long, dark brownish-gray externally, with transverse ridges, fissures and furrows; internally pale-brown, interior woody, porous, in concentric circles with medullary rays. It contains *Pelosine* or *Cissampeline*, an alkaloid identical with the Berberine of *Nectandra* and the Buxine of *Buxus sempervirens* (Boxwood). Several other Pareiras are on the market, that from the West Indies (*Cissampelos Pareira*) being the plant formerly official in the Br. Pharmacopœia.

Preparations.

Extractum Pareiræ Fluidum, *Fluid Extract of Pareira.*—Dose, ʒss–ʒj.
Infusum Pareiræ, *Infusion of Pareira* (Unofficial),—1 in 17. Dose, ℥j–ij.

Pareira is diuretic and laxative, stimulating peristalsis and the action of the kidneys. It is eliminated by the renal secretion, and passing over the mucous membrane of the genito-urinary tract, it acts thereon in a tonic and soothing manner, especially on the bladder.

It is particularly useful in chronic cystitis, suppurative kidney diseases, gonorrhœa and gleet, but must be used internally, as when injected locally for gonorrhœa and cystitis it has not proved successful. Formerly Pareira was considered an efficient lithontriptic, and in Brazil it is used as a cure for bites of poisonous serpents, being employed both internally and locally to the wound.

PEPO, Pumpkin-seed,—is the seed of *Cucurbita Pepo*, or common Pumpkin (nat. ord. Cucurbitaceæ), about ¾ inch long, white, flat, oval, inodorous, bland and oily. The active principle is a resin contained in the endopleuron or envelope immediately surrounding the embryo. It also contains an alkaloid *Cucurbitine*, a fixed oil, starch, sugar, etc. There are no official preparations. Dose, of the resin, gr. xv; of the seeds, ℥j–ij, beaten up into an emulsion with sugar and water.

Pumpkin-seed is an efficient agent for the removal of tapeworm (a tæniafuge), and its use is not followed by unpleasant symptoms. The outer coat of the seed should be removed, and an emulsion then made by trituration with sugar and water. This, if taken on an empty stomach and followed by a brisk cathartic, will generally prove effective. Dr. Squibb maintains that the seeds should not be decorticated, but that husks and all should be swallowed. According to some observers the expressed oil is equally efficient in doses of ℥ss repeated twice or three times, and followed by a cathartic.

PEPSINUM, Pepsin,—is a hypothetical name for the digestive principle of the gastric juice, and as a definite body is unknown, the various preparations, official and unofficial, being mere approximations, and varying much from each other. It is officially described as a proteolytic ferment or enzyme, obtained from the glandular layer of fresh stomachs from healthy pigs, and capable of digesting not less than 3000 times its own weight of freshly coagulated and disintegrated egg albumen, when tested by the official process.

A fine, white, or yellowish-white, amorphous powder, or thin, pale-yellow translucent grains or scales, free from any offensive odor; soluble in about 100 of water, more soluble in water acidulated with HCl, insoluble in alcohol, ether or chloroform. It usually has a slightly acid reaction, and may be neutral, but should never be alkaline.

The commercial Pepsin is usually obtained from a solution prepared b digesting the mucous membrane scraped from the rennet-bags of sheep o the stomach of the pig in acidulated water for several days. It is the precipitated by Chloride of Sodium (*Scheffer*), Acetate of Lead (*Bou dault*), or by drying the peptones on glass plates (*Beale*). It may als be precipitated by alcohol. By Scheffer's process it occurs as a tough gray, leathery substance, partially soluble in water, one grain dissolvin 3000 grains of albumen in a few days. Jensen's "Crystal Pepsin, probably prepared after Beale's method, is in yellowish, translucent scale soluble in water, and reputed to be many times stronger than any oth preparation yet obtained.

Preparations.

Pepsinum Saccharatum, *Saccharated Pepsin,*—is Pepsin 1, triturated with Sugar of Milk. One part should digest at least 300 parts of egg-albumen, when te by the official process. Dose, gr. v–ʒ j, shortly after meals.

Liquor Pepsini, *Liquid Pepsin* (Unofficial),—contains of Saccharated Pepsin parts, Hydrochloric Acid 12, Glycerin 400, Water q. s. ad 1000 parts. Dose, ʒ i after meals.

Lactopeptine (Unofficial),—claimed to contain Pepsin, Diastase or Ptyalin, Panc tin, Lactic and Hydrochloric Acids, and that ʒ j will digest ℥ viij–x of albumen, fi casein, or gelatin, will emulsionize ℥ xvj of cod-liver oil, and convert ℥ iv of starch glucose. A proprietary preparation. Dose, gr. v–xv.

[Every manufacturer of Pepsin has his own preparation, and his peculiar name t for, such as "Liquid Pancreopepsine," "Lacto-peptine." "Gluco-pepsine," "G Scale Pepsin," "Peptogenic Milk Powder," etc. They vary considerably in their erties, but all have the power in some degree of digesting albumen or fibrin.]

Analogous Products.

Pancreatinum, *Pancreatin,*—is officially described as a mixtur the enzymes naturally existing in the pancreas of warm-blooded ani usually obtained from the fresh pancreas of the hog (*Sus scrofa*). occurs as a yellowish-white or grayish, amorphous powder, of faint o and meat-like taste; slowly soluble in water, insoluble in alcohol. consists of four ferments, viz: (1) *Trypsin*, the proteolytic ferment, *Pancreatic Diastase*, the amylolytic ferment, (3) a fat-emulsifying, (4) a milk-curdling ferment. Besides the above-described official for is marketed in various preparations, as Pancreatic Emulsion, and the lowing—

Liquor Pancreaticus, *Pancreatic Solution* (Unofficial),—prepared by digesting finely-chopped pig's pancreas with 4 times its weight of dilute alcohol. It is a near clear alcoholic solution, with little taste or smell. Dose, ʒ j–℥ ss.

Ingluvinum, *Ingluvin* (Unofficial),—is obtained from the gizzar of the domestic fowl, and owes its activity to a peculiar, bitter principle and not to any ferment corresponding with pepsin. Dose, gr. x–xxx.

Papain, *Papaiva* (Unofficial),—is a vegetable ferment obtained fro the milky juice of *Carica Papaya*, a S. American fruit-tree of the nat. ord. Papayaceæ. It is soluble in water but not in alcohol, and has active digestive powers. It is composed essentially of a mixture of vegetable globulin, albumoses and peptone, with which are associated the ferments characteristic of the preparation. It is marketed under the name *Papoid.* Dose, gr. j–iij.

Papaw Milk is the milky juice of the fruit, coagulating into two parts, a pulpy mass and a liquid serum. When mixed with alcohol an amorphous powder is precipitated, which when dried forms Papain.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

PEPSIN is not a solvent, but a ferment, and is a normal constituent of the gastric juice, converting albuminoids (casein, albumen, fibrin, etc.) into peptones for assimilation, with the aid of the Lactic and Hydrochloric Acids associated with it. This it will do out of the body or in cavities, as the rectum, if warmth, acidity and moisture be present. Pancreatin, on the other hand, is destroyed by acids and requires an alkaline medium in which to exercise its powers. As the food passes out of the stomach in 2 or 3 hours, Pepsin should be administered within, and Pancreatin after that period, to be effective. Alcohol destroys the activity of Pepsin, Alkalies and many mineral salts precipitate it.

Dyspepsia in its various forms is the malady for which Pepsin is chiefly employed, but it is also extremely useful in the apepsia of infants, gastralgia, anæmia, chlorosis, gastric ulcer and cancer, the diarrhœa of infants and vomiting of pregnancy. It is added to nutritive enemata, the rectum not being a digestive organ, and is injected into the substance of morbid growths which are homologous to the tissues, particularly fatty tumors, for the purpose of arresting their growth and promoting their absorption. It has been injected into the bladder to break down a blood-clot, and has been suggested as an atomized inhalation in diphtheria and croup to digest the membrane without injuring the living tissues.

PANCREATIN digests albuminoids and converts starch into sugar and proteids into peptones, also emulsifies fats in the presence of an alkaline solution (Pepsin requiring an acid one). Prolonged contact with mineral acids renders it inert. It is digested by pepsin, and hence probably never passes into the duodenum in its own character. Pancreatin is used to partially digest (peptonize) milk, gruel, soups, and other foods, before their administration in cases of great digestive debility. These peptonized foods may be administered *per orem vel rectum*, and are valuable in intestinal dyspepsia, wasting diseases, and convalescence from acute affections. A teaspoonful taken after the administration of Cod-liver Oil will prevent the disagreeable eructations which are so offensive to some patients, and will aid in the digestion of the oil.

TRYPSIN, unlike Pepsin, will dissolve mucin, and like Pepsin it is inert towards nuclein, horny tissues, and amyloid matter. Used as a spray on diphtheritic membrane it has proved a very efficient solvent. It affects albuminoids even in a slightly acid solution.

INGLUVIN is particularly useful against vomiting and has been found exceptionally efficient in the vomiting of pregnancy, given in 20-grain doses before meals.

PAPAIN, (Papoid), has the power of digesting to a greater or less extent all forms of proteid or albuminous matter, both coagulated and uncoagulated. It is peculiar in that its digestive power is exercised in either acid, alkaline or neutral media, in which respect it differs greatly from the other digestive ferments. It acts more rapidly than Pepsin and at higher temperatures. It is a rapid solvent of false membranes and intestinal worms; and has been injected into neoplasmic tumors, dissolving their tissues in its immediate vicinity, but with much pain and considerable febrile reaction. Papoid has been used as a paste locally in diphtheria, to destroy and remove the false membrane; internally, in gastric and gastro-intestinal catarrh, the diarrhœa of infancy, and various dyspeptic conditions, with very great success. Its power over both gastric and intestinal indigestion renders it much more useful than either pepsin or pancreatin in cases of doubtful diagnosis, in which it is difficult to decide as to the location of the trouble.

Papoid may be obtained in powder or tablets, either alone or in combination with Sodium Bicarbonate, Boracic Acid, and Nux Vomica; also as a glycerole, which is said to be a permanent liquid preparation. The dose of Papoid is from 1 to 3 grains, but 5 grains or more may be given in special cases.

PETROLATUM, Petrolatum,—is a mixture of hydrocarbons, chiefly of the marsh-gas series, obtained from Petroleum, by distilling off the lighter portions and purifying the residue. It is colorless or yellowish in color, and in the latter case is more or less fluorescent; amorphous, odorless and tasteless, of neutral reaction, insoluble in water or alcohol, soluble in ether, chloroform, benzin, fixed and volatile oils, etc. Commercially it is known as *Cosmoline*, *Vaseline*, *Petroleum Ointment*, etc., and is largely prepared from residuums or sediments deposited in tanks containing crude petroleum. It is official in the following three forms, all of which, when heated, give off a faint odor of petroleum, viz:—

Petrolatum Liquidum, *Liquid Petrolatum*,—an oily, transparent fluid, of sp. gr. 0.875 to 0.945.

Petrolatum Molle, *Soft Petrolatum*,—a fat-like mass, of the consistence of an ointment, sp. gr. about 0.820 to 0.840, melting-point between 104° and 113° F.

Petrolatum Spissum, *Hard Petrolatum*,—a fat-like mass, of about the consistence of a cerate, sp. gr. 0.820 to 0.850, melting-point between 113° and 125° F.

Petrolatum is a valuable protective dressing, and an excellent basis for ointments, having no acridity and no liability to become rancid. It is readily miscible with many active agents, as the alkaloids, phenol compounds, etc., but it does not penetrate the skin as readily as animal fats and fixed oils. Uncombined, it forms an excellent bland application in all irritated conditions and injuries of the skin.

PHENACETINUM, Phenacetin, *Oxy-ethyl-acetanilid*, (*Para-acet-phenetidin*) $C_{10}H_{13}NO_2$, (Unofficial), — is a crystalline substance, closely allied in chemical composition to Acetanilid, and produced by the action of glacial acetic acid on para-phenetidin, a body obtained from phenol. It occurs in colorless, tasteless, inodorous, glistening, scaly crystals, sparingly soluble in cold water, more freely in boiling water, also in about 16 fluid parts of alcohol. Dose, gr. ij–xx;—as an antipyretic, gr. viij–x hourly or every two hours, in powder or tablets; against neuralgia and rheumatism, gr. xv, repeated if necessary up to ʒjss in 24 hours.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The physiological action of Phenacetin is analogous to that of Acetanilid. It is probably the safest of the new synthetical antipyretics, reducing pyrexia gradually and causing perspiration without producing collapse. It is also anodyne and hypnotic, soothing pain and inducing sleep.

Phenacetin has been given with benefit, in 2-grain doses with ½ grain of Caffeine Citrate, for migraine; also in epidemic influenza, both as a prophylactic and as a remedy. As an antipyretic it is extensively employed in phthisis, peritonitis, polyarthritis, etc., also in endocarditis, typhus and typhoid fevers; and as an antineuralgic in vaso-motor neuroses, for the lancinating pains of locomotor ataxia, and in neuralgia and hemicrania. It is highly praised in whooping-cough, rheumatic and other fevers, and, though slower in action than Antipyrin or Acetanilid, is deemed fully as efficient in reducing pyrexia, while usually free from the depressant after-effects of these latter agents.

Methacetin, *Oxy-methyl-acetanilid* (Unofficial),—derives its name from its analogy to Phenacetin, from which it differs only in containing a methyl group in place of an ethyl one. From Acetanilid it differs in the substitution of the oxy-methyl group for a hydrogen atom. It occurs as lustrous, scaly, colorless, odorless crystals; soluble in 12 of hot water, in alcohol, chloroform, glycerin and fatty oils; scarcely soluble in cold water. Dose, gr. iij–v, or more.

Methacetin was introduced as an antipyretic for children and feeble persons, and promised at one time to supersede phenacetin. It is well borne, and no malaise, tinnitus, cardiac weakness or exanthem follow its ingestion; but it often gives rise to a violent and exhausting perspiration.

It has been used successfully in typhoid fever, all forms of rheumatism, neuralgias, pneumonia, and in most forms of pyrexia, but has not as yet equaled the results obtained by either phenacetin or antipyrin. Its employment in phthisis was not favorable, chiefly by reason of the profuse sweating induced by it. Its advantages, over all the other antipyretics of its class, are its lack of toxic properties, and its comparatively ready solubility in water, being five times more soluble than its rival, phenacetin.

PHENOCOLL HYDROCHLORIDE (Unofficial),—is another synthetical antipyretic, closely allied to Phenacetin, both chemically and medicinally, and distinguished by its comparatively free solubility. It is produced by the interaction of Phenetidin and Glycocoll (amido-acetic acid), and occurs as a white, micro-crystalline powder, soluble in about 16 of water, therein forming a neutral solution. The pure base, Phenocoll, is precipitated from the solution by ammonia, the fixed alkalies and their carbonates.

Phenocoll Hydrochloride may be looked upon as a soluble Phenacetin, 15 grains dissolving readily in ℥j of water. With decided antipyretic, antirheumatic and analgesic powers, it possesses a marked advantage, over the other members of its class, in that it has no injurious effect upon the blood corpuscles, even when in direct contact with them. It is promptly absorbed, readily excreted, and reduces the hyperpyrexia of fever without producing very profuse sweating, or other unpleasant by-effects. The fall in temperature is very decided, and occurs within an hour after the administration of the drug; being due to great diminution of heat-production, without any alteration of heat-dissipation. In ordinary doses it has no effect on the circulation, but large doses diminish the blood-pressure and reduce the pulse-rate, by stimulating the cardio-inhibitory centres.

This drug has been employed, with marked success, as an antipyretic in hectic, malarial, typhoid, and other fevers: also in acute rheumatism, neuralgia, epidemic influenza, and for the neuralgic pains of the latter affection. In combination with Piperazin, 15 grains of each daily, in a pint or more of carbonated water, it has rendered excellent service in gouty and rheumatic affections, especially when accompanied with pain and fever. The same combination has proven of service in a case of obstinate gastric irritability with uncontrollable vomiting, which had resisted every known remedy. The dose is gr. v–xxx, an average dose being about 12 grains, thrice or four times a day.

PHOSPHORUS, Phosphites and Phosphates,—are best studied together, as the supplying of the element Phosphorus to the body is the aim of the administration of these agents.

Phosphorus, P,—is a non-metallic element obtained from bones, and occurs as a translucent, nearly colorless solid, of waxy lustre, and usually the consistence of beeswax, insoluble in water, soluble in 50 parts of any fatty oil, in 80 of absolute ether, 350 of absolute alcohol, and freely in carbon disulphide. It has a disagreeable odor and taste, melts at 111° F., is luminous in the dark, ignites in the air, and should be kept under water in a cool place, protected from light. It usually contains Arsenic and sometimes Sulphur, the limits of which are fixed by the pharmacopœial tests. Dose, gr. $\frac{1}{100}$–$\frac{1}{10}$, thrice daily.

Preparations of Phosphorus.

Pilulæ Phosphori, *Pills of Phosphorus,*—each contains gr. $\frac{1}{100}$ of Phosphorus, dissolved in Chloroform, mixed with Althæa and Acacia in Glycerin and Water, and coated by shaking with a solution of Balsam of Tolu in Ether. Dose, j–v.

Oleum Phosphoratum, *Phosphorated Oil,*—has of Phosphorus 1 part, Ether and Expressed Oil of Almond to 100. Dose, ♏j–v thrice daily.

Acidum Phosphoricum and **Acidum Phosphoricum Dilutum,**—are described on page 78, *ante.*

Acidum Hypophosphorosum Dilutum, *Diluted Hypophosphorous Acid*,— a liquid composed of about 10 per cent. of the absolute acid (HPH_2O_2), and about 90 per cent. of water. Used in the preparation of Syrupus Hypophosphitum.

Spiritus Phosphori, *Spirit of Phosphorus*, (*Tincture of Phosphorus*) —has of Phosphorus 1.2, dissolved in Absolute Alcohol 1000.

Elixir Phosphori, *Elixir of Phosphorus*,—has of the preceding 210, Oil of Anise 2, Glycerin 550, Aromatic Elixir to 1000. Each cubic cm. represents about ¼ milligramme of phosphorus (each ʒ equals about gr. $\frac{1}{64}$). Dose, ʒss–℥ss.

Tinctura Phosphori (*Thompson's*), Unofficial,—Phosphorus gr. j, Absolute Alcohol ʒv, Glycerin ℥j½, Alcohol ʒij, Spt. Menthæ Piperitæ ♏xl. Of this ʒj contains gr. $\frac{1}{[illegible]}$ of Phosphorus. Dose, ʒss–ʒjss.

Tinctura Phosphori (*Bellevue Hospital*), Unofficial,—Phosphorus gr. xxxij, Absolute Alcohol ℥xlvj, Essence of Vanilla ℥j, Oil of Orange ʒiij, Alcohol q. s. ad ℥xlviij. Of this ʒj contains gr. $\frac{1}{12}$ of Phosphorus. Dose, ʒss–j.

Zinci Phosphidum, *Zinc Phosphide*, Zn_3P_2,—crystalline fragments or a gray-black powder, insoluble in water or alcohol, but completely soluble in hydrochloric or sulphuric acids with evolution of hydrogen phosphide. Is very irritant to the stomach. Dose, gr. $\frac{1}{10}$–$\frac{1}{20}$.

Preparations of Phosphites.

Calcii Hypophosphis, *Calcium Hypophosphite*, $Ca(PH_2O_2)_2$.—colorless prisms, or thin, pearly scales, of nauseous taste, soluble in 6.8 of water, insoluble in alcohol. Is an ingredient of the Syrupus Hypophosphitum. Dose, gr. x–xxx.

Ferri Hypophosphis, *Ferric Hypophosphite*, $Fe_2(H_2PO_2)_6$,—a white or grayish-white powder, odorless and tasteless, slightly soluble in water, freely so in hydrochloric acid or a solution of sodium nitrate. Dose, gr. v–x. A ferruginous tonic.

Potassii Hypophosphis, *Potassium Hypophosphite*, KH_2PO_2.—white masses, or a white, granular powder, deliquescent, odorless, of saline taste and neutral reaction. Soluble in 0.6 of water and in 7.3 of alcohol at 59° F. Dose, gr. v–x.

Sodii Hypophosphis, *Sodium Hypophosphite*, $NaPH_2O_2 + H_2O$,—small plates, or a white, granular powder, deliquescent, odorless, of sweetish, saline taste, and neutral reaction. Soluble in 1 of water and 30 of alcohol at 59° F. Dose, gr. v–x.

Syrupus Hypophosphitum, *Syrup of Hypophosphites*,—has of Calcium Hypophosphite 4½, of Potassium and Sodium Hypophosphites 1½ each, per cent. Dose, ʒj–℥ss.

Syrupus Hypophosphitum cum Ferro, *Syrup of Hypophosphites with Iron*,—has of Ferrous Lactate 1, Potassium Citrate 1, in Syrup of Hypophosphites to 100. Dose, ʒj–℥ss.

Preparations of Phosphates.

Calcii Phosphas Præcipitatus, *Precipitated Calcium Phosphate*, $Ca_3(PO_4)_2$,—a light, white, amorphous powder, odorless and tasteless, insoluble in water or in alcohol. Dose, gr. ij–x.

Syrupus Calcii Lactophosphatis, *Syrup of Calcium Lactophosphate*,—has of the preceding 2½ per cent. The Calcium Phosphate is dissolved by Lactic and Phosphoric Acids, but does not form the chemical combination suggested by the title. Dose, ʒj–℥ss.

Sodii Phosphas, *Sodium Phosphate*, $Na_2HPO_4 + 12H_2O$,—large, colorless, monoclinic prisms, efflorescent, of saline taste and alkaline reaction; soluble in 6 of water, insoluble in alcohol. Dose, ʒj–℥j.

Sodii Pyrophosphas, *Sodium Pyrophosphate*, $Na_4P_2O_7 + 10H_2O$,—colorless, monoclinic prisms, of saline taste and alkaline reaction; soluble in 12 of water, insoluble in alcohol. Dose, ʒss–℥ss.

Syrupus Ferri, Quininæ et Strychninæ Phosphatum, *Syrup of the Phosphates of Iron, Quinine and Strychnine*,—has of Soluble Ferric Phosphate 2, Quinine Sulphate 3, Strychnine $\frac{1}{50}$, Phosphoric Acid 4.8, Glycerin 10, Water 5, Syrup to 100. A powerful tonic. Dose, ʒj–iij.

Syrupus Phosphatum Compositus, *Compound Syrup of Phosphates*, Parrish's Chemical Food (Unofficial),—has in each ʒ, of Ferric Phosphate gr. 2½, Calcium Phosphate gr. j. Dose, ʒj–iij.

Ferri Phosphas and **Ferri Pyrophosphas** are described under **Ferrum**, *ante*, page 236.

PHYSIOLOGICAL ACTION.

PHOSPHORUS in small doses stimulates the brain and circulation, the functions of the stomach and the genital organs, and the growth of bones.

It aids digestion by irritating the end-organs of the gastric nerves, and produces eructations of Hydrogen Phosphide. Its fumes cause necrosis of the upper or lower maxillæ, especially in those whose teeth are decayed, but this may be prevented by the inhalation of fumes from old acid turpentine. In poisonous doses it is a powerful irritant of the gastro-intestinal tract, causing vomiting and purging with great depression of the vital forces. Reaching the blood as Phosphorus, it is partly oxidized at the expense of the oxygen of the red corpuscles, causes acute hemorrhages from fatty degeneration of the arterial walls, rapid steatosis of the stomach, liver and heart, with deep jaundice,—then delirium, convulsions, coma and death usually from gradual failure of the respiration and circulation. Acute yellow atrophy of the liver resembles acute phosphorus poisoning so much that it is generally impossible to distinguish between them.

Its effect on metabolism is to increase the nitrogenous products, to diminish the excretion of carbonic acid, reduce the glycogen of the liver to almost nothing, and to raise the temperature. While generally increasing metabolism it so influences that process as to arrest it at the stage of conversion of proteids into urea and oil, instead of allowing it to proceed to the final oxidation of oil into carbonic acid and water, hence leading to fatty degeneration of epithelial, glandular and muscular protoplasm throughout the body.

CALCIUM PHOSPHATE is an essential ingredient of all the tissues and fluids of the body, and forms more than 50 per cent. of the bones. Lactic and Hydrochloric acids dissolve it in small quantities. It increases the alkalinity of the blood as well as its power of holding carbonic acid, and diminishes the excretion of urea.

SODIUM PHOSPHATE acts on the blood and on the excretion of urea similarly to the calcium salt. It increases secretion generally, especially of the bile, being an excellent cholagogue and thereby aiding in the digestion of fats. In ounce doses it is laxative. It is a normal constituent of the blood, and possesses the property of increasing the capacity of any fluid to hold carbonic acid in solution.

The HYPOPHOSPHITES are generally tonic, and are supposed to constitute a safer form in which to administer Phosphorus than in the unoxidized state. They are probably converted into phosphates in the stomach.

Antidotes and Antagonists.

Antidotes are Hydrated Magnesia, Lime-water, powdered Charcoal, Copper Sulphate and old acid Turpentine. *Sulphate of Copper* is the best emetic, forming a comparatively insoluble phosphide of copper; 3-grain doses should be given every 5 minutes in dilute solution until emesis occurs. *Hydrated Magnesia* as a quickly-acting purgative. *Lime-water* or *Charcoal* to prevent the action on the tissues. *Crude French Acid Turpentine* is the best antidote, which may be given rapidly in an emulsion of gum. *Opium* to counteract the depression of the heart and system. *Transfusion* has proved efficient where the blood is affected. No oils or fats should be used, as they dissolve Phosphorus and promote its absorption.

THERAPEUTICS.

PHOSPHORUS is chiefly used to promote the nutrition of osseous and nervous tissue. It is useful in chronic nervous exhaustion when the nerve centres are implicated, in osteomalacia, rachitis and progressive locomotor ataxia. In threatened cerebral softening it affects the nerve centres as no other drug does, and in paraplegia of myelitic origin from excessive venery it is often very efficient. Progressive pernicious anæmia has sometimes been arrested by Phosphorus in very small doses, while in impotence of functional character there is no remedy so effective. In wakefulness of the aged and that due to cerebral anæmia small doses of the pill or tincture are sometimes remarkably beneficial. In certain skin diseases (acne, psoriasis, lupus), it is an excellent substitute for Arsenic. Neuralgia is often cured by Phosphorus, but large doses are necessary, at least gr. $\frac{1}{12}$ every four hours.

The solution of Phosphorus in Retinol is very stable, and is strongly recommended for the external and internal use of that substance.

CALCIUM PHOSPHATE and the **HYPOPHOSPHITES** are used with benefit in all diseases of mal-nutrition, and where the repair or development of the bones is required. They are particularly useful in protracted suppuration, osteomalacia, rachitis, caries, scrofulosis, chronic phthisis, and in the anæmia and bone-softening of lactation. The Hypophosphites are much employed in nervous and general debility and in chronic lung diseases, and are supposed to act in the same manner as free Phosphorus, but without irritation. They are probably converted into Phosphates in the stomach, and hence may be expected to promote the growth and healing of bones, to stimulate the hepatic and intestinal secretions, and to affect the lymphatic glands and adenoid tissue. The Compound Syrup of the Hypophosphites is an excellent remedy in acne indurata.

SODIUM PHOSPHATE in drachm-doses thrice daily for adults, gr. x–xxx for children, is extremely useful as a laxative in conditions depending on catarrh of the bile-ducts and duodenum, as headache, jaundice, chalky stools, etc. Gall-stones may be prevented from forming by scruple or drachm doses before meals for months at a time. It is also an efficient agent in obesity, hepatic diabetes, incipient hepatic sclerosis, chronic infantile diarrhœa, cerebral debility, bilious sick-headache, and the pasty, white stools of ill-conditioned children. Vichy-water contains this salt in the proportion of gr. ¾ to the pint, and is considered a valuable water in hepatic colic and kindred conditions. Finally for the condition of the system producing a crop of boils, Sodium Phosphate is probably the best remedy.

PHYSOSTIGMA, Calabar Bean,—is the seed of *Physostigma venenosum* (nat. ord. Leguminosæ), a woody creeper of Calabar, West Africa, where it is used by the natives as an ordeal for witches, etc., vomiting after its ingestion being held to establish the innocence of the accused. It is about an inch long, irregularly kidney-shaped, with two flat sides and a furrow along its convex margin ending in an aperture near one end. It contains an alkaloid, variously named *Eserine*, *Physostigmine* and *Calabarine*, $C_{15}H_{21}N_3O_2$, which is obtained as a crystalline, an amorphous or a syrupy body. Some authorities apply the above names to different bodies, but acknowledge that they agree in physiological action though not in physical qualities.

Preparations.

Extractum Physostigmatis, *Extract of Physostigma,*—an alcoholic extract, of which the dose is from gr. ⅙ to gr. j.

Tinctura Physostigmatis, *Tincture of Physostigma,*—strength 15 per cent. Dose, ♏ v–xx.

Physostigminæ Salicylas, *Physostigmine Salicylate,* (*Eserine Salicylate*),—colorless columnar crystals, of bitter taste and neutral reaction, soluble in 150 of water and in 12 of alcohol. Dose, gr. $\frac{1}{100}$–$\frac{1}{60}$.

Physostigminæ Sulphas, *Physostigmine Sulphate* (*Eserine Sulphate*),—a white, micro-crystalline powder, of bitter taste, very deliquescent in moist air, very soluble in water and in alcohol. Dose, gr. $\frac{1}{100}$–$\frac{1}{50}$.

PHYSIOLOGICAL ACTION.

Physostigma is a direct spinal paralyzer, producing complete general paralysis, and abolished reflexes, but not affecting muscular irritability or the cerebral functions. It stimulates secretion, excites nausea and vomiting, salivation and diaphoresis, and is laxative by stimulating the muscular coat of the intestines to increased peristalsis as well as by increasing the intestinal secretions. It first lowers then raises arterial tension, increases the frequency of the heart-beat, but depresses the power of the cardiac muscle though not destroying it. It produces dyspnœa by a tetanic action on the respiratory muscles, causing carbonic acid narcosis and death by paralysis of respiration. It contracts the pupil (how, is disputed), and the ciliary muscle, producing marked myosis. It is eliminated chiefly by the kidneys, the urine of the animal affected poisoning another.

Antagonists and Incompatibles.

Atropine is antagonistic as to the effects on the respiration, heart and pupils. *Chloral* is also antagonistic, and over a greater field of action, but to be effective must be administered before the ingestion of the Physostigma. The vegetable astringents, Tannic Acid and the caustic alkalies are chemically incompatible.

THERAPEUTICS.

The applications of Physostigma are not many. It is efficient in constipation due to torpor of the bowels, in which condition it is usually combined with Belladonna and Nux Vomica. In tetanus it has been used with advantage to diminish reflex excitability in grain-doses of the extract repeated every 2 hours and the dose modified according to the effect produced. Progressive paralysis of the insane is apparently retarded by it, and while antagonistic theoretically in atropine and strychnine poisoning, practically it is not of much value.

PHYSOSTIGMINE (ESERINE) is used locally by ophthalmologists for many purposes in affections of the eye. In a solution of gr. ij to the ℥ of water dropped into the eye, it is efficient in breaking up or preventing adhesions of the iris, diminishes intraocular tension, prevents suppuration after operations, contracts the pupil, diminishing the entrance of light in photophobia, etc., and empties the vessels of the eye. It is very useful in keratitis, glaucoma, strumous ophthalmia, and neuralgia of the eye-ball. The salts of Physostigmine in neutral solution may be used for these purposes, as well as to counteract the effects of Atropine on the pupil. Gelatin disks medicated therewith may be obtained in the shops, and are a convenient form in which to use the drug for ophthalmic purposes.

PHYTOLACCA, Poke,—is official under two forms, the fruit and the root of *Phytolacca decandra*, a plant of the nat. ord. Phytolaccaceæ, found in all parts of the United States. It contains a neutral principle *Phytolaccin*, and an acid *Phytolaccic Acid*, also tannin, starch, fixed oil, etc. The official titles are as follows, viz.—

Phytolaccæ Fructus, *Phytolacca Fruit*, (*Poke Berry*),—a depressed-globular, dark purple, compound berry, about ⅓ inch in diameter, composed of ten carpels, each containing one lenticular, black seed; juice purplish-red; inodorous, taste sweet, slightly acrid. Dose, gr. x–xxx.

Phytolaccæ Radix, *Phytolacca Root*, (*Poke Root*),—large, conical, branched, fracture fibrous, wood-bundles in concentric circles, inodorous, sweetish and acrid. Dose, as emetic, gr. x–xxx,—as an alterative, gr. j–v.

Preparations.

Extractum Phytolaccæ Radicis Fluidum, *Fluid Extract of Phytolacca Root.*—Dose, ♏j–xxx.

Tinctura Phytolaccæ, *Tincture of Phytolacca* (Unofficial).—Dose, ♏x–ʒj.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Phytolacca is an emeto-cathartic, acting slowly but persistently, with great nausea and considerable depression. It lowers the rate of respiration and of cardiac action, and is a motor depressant, paralyzing the spinal cord and the medulla, death occurring from paralysis of respiration, preceded by tetanic convulsions. Several cases of poisoning by this plant have occurred. Its action is antagonized by Alcohol, Ether, Opium, Digitalis, etc.

Alterative powers have been ascribed to Phytolacca, and competent observers have reported curative results from its use in malignant tumors, varicose and other ulcers, obstinate eczema, sycosis, favus and other skin affections, employing it both internally and externally. It is a very serviceable remedy in chronic rheumatism, and given internally has undoubtedly cured cases of granular conjunctivitis. Mastitis is sometimes aborted and suppuration of the breasts prevented by the use of the fluid extract internally while a solid extract is locally applied to the seat of the impending inflammation. In tonsillitis and diphtheritic sore throat, also in chronic follicular pharyngitis, it has been much used with good results, especially when there is high fever and pains in the head, back and limbs. In true adynamic diphtheria it will do little good.

Phytolacca has long been known to promote the absorption of adipose tissue, and was suggested as a remedy for obesity as early as 1858. A resinoid preparation of the berries is on the market as an "anti-fat" remedy, under the name *Phytoline*, the dose of which is ♏x six times a day, before and after each meal.

PICHI, **Pichi** (Unofficial),—is the shrub *Fabiana imbricata*, a member of the nat. ord. Solanaceæ, and a native of S. America. Among the Chilians it has been much prized as a remedy in cystitis with calculi and gravel, and in chronic catarrh of the bladder. It seems to have considerable power over the hematuria and pain of renal calculus. It is also highly praised in dyspeptic disorders. Its medicinal virtues reside in oleo-resinous constituents which are insoluble in water. An extract is prepared from the leaves, of which the dose is gr. v–x in capsules. Dose of the fluid extract, ʒj, but it should not be added to water.

PICROTOXINUM, **Picrotoxin**, *Picrotoxic Acid*, $C_{30}H_{34}O_{13}$,—is a poisonous, neutral principle obtained from the seeds contained in the berries (*Cocculus Indicus*, Fish-berries), of *Anamirta paniculata* (Anamirta Cocculus, Menispermum Cocculus), a climbing shrub of the nat. ord. Menispermaceæ, a native of the East Indies. The berries are somewhat kidney-shaped, of blackish-brown color, wrinkled, brittle, inodorous and nearly tasteless, except the shrivelled embryo, which is bitter. They contain, besides Picrotoxin, a large quantity of fixed oil and other substances of less interest. In the shell are found *Menispermin*, an alkaline principle, *Paramenispermin*, which is neutral and crystalline, and *Hypopicrotoxic Acid*. There are no official preparations.

Picrotoxin occurs in colorless, flexible crystals, of prismatic form, bitter taste and neutral reaction, soluble in 240 of water and in 9 of alcohol, also in acids and in alkaline solutions. Dose by the stomach gr. $\frac{1}{60}$–$\frac{1}{20}$, cautiously. For hypodermic use a solution in water of gr. ij in ℥j may be used, in doses of gr. $\frac{1}{60}$–$\frac{1}{40}$ of the principle, ♏ iv equalling gr. $\frac{1}{60}$.

Unofficial Preparations of Cocculus.

Tinctura Cocculi, *Tincture of Cocculus*,—1 in 8. Dose, ♏ ij–xv.
Extractum Cocculi Fluidum, *Fluid Extract of Cocculus.*—Dose, ♏ j–iij.
Planat's Tincture of Cocculus,—1 in 4. Dose, ♏ j–v.

PHYSIOLOGICAL ACTION.

Picrotoxin is a cerebro-spinal exaltant, affecting especially the centres in the medulla oblongata, and in its action representing the combined action of Belladonna and Nux Vomica. It stimulates all the secretions, especially the cutaneous, the salivary and intestinal; produces nausea and vomiting, and slows the heart and the respiration after transiently accelerating both. It causes muscular twitching, incoördination, stupor, delirium, epileptiform convulsions, tonic spasms of the flexor muscles alternating with clonic ones, exalted reflexes and trembling,—then coma, insensibility and death by paralysis of the heart, which is arrested in diastole. The action of the drug is on the spasm and vagus centres in the medulla, and on Setchenow's inhibitory centre, as well as on the cerebellum and spinal cord, paralyzing the first-named centres and stimulating the reflex centres in the cord. It is eliminated by all the excretory channels, chiefly by the kidneys.

The spasms caused by Picrotoxin are choreic and chiefly affect the flexor muscles,—those from Strychnine are tetanic, affecting principally the extensors. The order, succession and character of the phenomena produced by Picrotoxin resemble in marked degree those of the epileptic paroxysm.

Cocculus berries are used to stupefy fish, being thrown into ponds containing them. They are also employed to adulterate beer and porter in order to make these drinks more intoxicating.

Antagonists.

Chloral is antagonistic to its cerebral and spinal actions, but synergistic to its depressant power over the heart and the respiration. *Acetic Acid* gives relief in overdosing, and may have some antidotal power. *Anesthetics* antagonize its spasm-producing action.

THERAPEUTICS.

Picrotoxin is used chiefly in nervous diseases. Epilepsy is amenable to it, especially when the attacks are nocturnal, and in anæmic cases and those attributable to onanism. Paralyses of several forms have been greatly benefited by it, especially paralysis of the sphincters, hemiplegia from cold, glosso-labio-laryngeal paralysis, and paralysis agitans. Chorea is well treated by it but requires full doses. It is remarkably efficient in controlling the night sweats of phthisis, and in flatulent colic, also in dyspepsia with flatulence and severe epigastric pain, and in vomiting with giddiness, headache and intolerance of light and sound. Dysmenorrhœa is often benefited by Cocculus administered for two days before the period; and leucorrhœa, when the discharge is sero-purulent, with lumbar pains, is frequently controlled by it. Parasitic skin diseases are well treated by an ointment of Picrotoxin (gr. x. to the ℥), which will also kill pediculi, but it must be used cautiously and with special care to avoid an abraded surface. The tincture of Cocculus may be used as a wash to kill body-lice, undiluted.

PILOCARPUS, Jaborandi,—the leaflets of *Pilocarpus Selloanus*, and of *Pilocarpus Jaborandi*, Brazilian plants of the nat. ord. Rutaceæ. They are about 4 inches long, ovate-oblong, coriaceous, pellucid-punctate, mostly smooth, somewhat pungent and bitter, and contain two alkaloids,—*Pilocarpine*, $C_{11}H_{16}N_2O_2$, soft and viscous, slightly soluble in water but soluble in alcohol, ether and chloroform; *Jaborine*, isomeric with Pilocarpine, to which it is antagonistic in action; also a Volatile Oil and probably a peculiar acid.

Preparations.

Extractum Pilocarpi Fluidum, *Fluid Extract of Pilocarpus.*—Dose, ♏ v–ʒj.

Pilocarpinæ Hydrochloras, *Pilocarpine Hydrochlorate,* $C_{11}H_{16}N_2O_2HCl$,—small, white, deliquescent crystals, odorless, of faintly bitter taste; very soluble in water and in alcohol, almost insoluble in ether or chloroform. Dose, gr. ⅛–½.

Physiological Action.

Pilocarpus is a paralyzer of the vaso-motor system, and a stimulant of the peripheral terminations of nerves supplying glands and involuntary muscular fibre, subsequently paralyzing the latter. It is therefore a powerful diaphoretic and sialogogue, a cardiac depressant by stimulation of the vagus ends,—also myotic, emetic, and under some circumstances abortifacient. Its taste is hot and pungent. It causes prompt and profuse perspiration (℥ix–xv, in quantity) and salivation (℥x-xxvij), after a preliminary flushing of the skin. The nasal, bronchial and lachrymal secretions are much increased; sometimes watery diarrhœa occurs; the action of the heart, at first increased, is afterwards lowered, the arterial tension is reduced, and the temperature falls from 1° to 4°. Drowsiness, pallor, chilliness and debility succeed, and last several hours; the pupil is contracted and accommodation impaired. The elimination of urea is greatly increased, but not the quantity of urine. The respiratory power is lowered, and apnœa may occur, from increase of the bronchial mucus.

Pilocarpus is rapidly diffused, and is eliminated by the skin and the salivary glands. Its effects pass off usually in from three to six hours. Children are less affected than adults, by proportionate doses. It causes contractions of the bladder, uterus and spleen, in the latter case whether the organ is enlarged or of normal size.

PILOCARPINE is the principle to which the foregoing actions are due, but JABORINE, though chemically identical, is perfectly antagonistic thereto in its effects on the heart, pupils, lungs and salivary glands, acting precisely like Atropine on these organs. The difference is probably due to a different molecular arrangement.

Antagonists and Incompatibles.

Atropine is the antagonist to Pilocarpine in dose of gr. $\frac{1}{100}$ for gr. $\frac{1}{6}$ of the latter. The antagonism between these two alkaloids extends over the whole range of their action, and is the most complete known to physiological experimentation. Conversely *Pilocarpine* is exactly antagonistic to Atropine, but *Jaborine* acts similarly to the latter drug. *Morphine* controls the nausea and vomiting. Caustic alkalies, the persalts of Iron and salts of the metals generally, are chemically incompatible.

THERAPEUTICS.

Jaborandi is used with great benefit in dropsies, especially the renal form, also in eclampsia of renal origin, in uræmia, pleuritis, meningitis and other inflammations of serous membranes, but it is contraindicated when from any cause there is weak heart. In diabetes insipidus it reduces the quantity of urine remarkably, relieving the kidneys by throwing the work on the skin. In the acute and chronic forms of Bright's disease it has been used with advantage, but being so depressant it must be employed with great caution in this disorder. For alopecia it is the most efficient remedy known, stimulating the skin and improving the color and condition of the hair. In agalactia it stimulates the secretion of the milk, and it often gives prompt relief in parotitis. Ptyalism is frequently relieved by minute doses of Pilocarpine (gr. $\frac{1}{80}$), which, acting specifically on the same gland, may correct the morbid action thereof; and similar doses used thrice daily will check profuse perspiration. The hypodermic use of Pilocarpine will arrest a paroxysm of spasmodic asthma, and is equally efficient in hiccough. Atropine-poisoning is best combated by the use of Pilocarpine hypodermically.

Ophthalmologists employ Pilocarpine with most excellent results in the amblyopia of alcoholism and that from the abuse of tobacco, in detachment of the retina, chronic iritis, keratitis, glaucoma, hemorrhage into the vitreous, atrophic choroiditis, white atrophy, to promote resolution and absorption in inflammatory conditions with exudation, and instead of Physostigmine as a myotic.

Erysipelas and diphtheria are diseases in which Pilocarpine has recently proved very efficient, but its depressant action on the heart and respiration must not be lost sight of. In the writer's experience the fluid extract is one of the best agents for breaking up a common cold. It may be given in doses of ♏x–ʒj, according to age, at bedtime. Children bear the drug well in respect to all its physiological actions.

PIMENTA, Allspice,—is the nearly ripe fruit of *Pimenta officinalis*, a West Indian tree of the nat. ord. Myrtaceæ. The berries are nearly globular, about ¼ inch in diameter, crowned with the remnants of the calyx, two-celled, each cell containing one reniform seed; odor and taste pungent and aromatic. They contain a Volatile Oil which is official, a green fixed oil, fat, tannin, gum, resin, etc. Dose, gr. x–xl.

Oleum Pimentæ, *Oil of Pimenta,*—the volatile oil, colorless or pale yellow, of aromatic odor, pungent taste and slightly acid reaction. Is a constituent of Bay Rum (See Myrcia). Dose, ♏ij–vj.

Allspice is a warm, aromatic stimulant, very useful as a condiment, improving digestion by increasing the vascularity of the gastric mucous membrane, and by stimulating the salivary secretion. The oil is an agreeable remedy for flatulence, nausea, and intestinal colic, and is used to prevent the griping of purgatives and to cover the taste of nauseous medicines.

PIPER, Pepper, (*Black Pepper*),—is the unripe fruit of *Piper nigrum*, or Pepper-vine, a perennial plant of the nat. ord. Piperaceæ, growing in India, Siam, Java, Borneo, etc. It is about ⅙ inch in diameter, of globular shape, reticulately wrinkled, aromatic, of pungent, spicy taste, and contains a principle, *Piperin*, which is official, also a green, acrid, concrete oil, a balsamic volatile oil, starch, lignin, gum, extractive, etc. Dose, gr. v–xx.

Oleoresina Piperis, *Oleoresin of Pepper,*—contains almost all the volatile oil and acrid resin extracted by ether, with little of the Piperine. Dose, ♏¼–j.

Piperinum, *Piperin,* $C_{17}H_{19}NO_3$,—a neutral principle prepared from Pepper, and occurring also in other plants of the natural order Piperaceæ. Occurs in colorless or pale-yellowish prisms, of neutral reaction, almost insoluble in water, slightly so in ether, but soluble in 30 of alcohol. Dose, gr. j–x.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Pepper when applied to the skin acts as an irritant; internally its effects are similar to those of other aromatics, being a warm carminative and stimulant, increasing slightly the action of the heart, stimulating the kidneys somewhat, and toning up the mucous membrane of the urinary and intestinal passages, by which channels it is eliminated. It has been thought to possess antiperiodic powers, and was formerly much employed in intermittents. Its chief medicinal use is to correct flatulence, and to excite action of the stomach, being very commonly taken as a condiment with food. It is occasionally employed in gleet, but more extensively in hemorrhoids and other diseases of the rectum. Its active constituents are the concrete oil or resin and the volatile oil, Piperin having very slight action on the system, except as an antiperiodic and antipyretic, qualities which it certainly possesses.

PIPERAZINUM, Piperazin, $C_4H_{10}N_2$ (Unofficial),—is a synthetical basic compound which is formed by the action of Ammonia upon Ethylene Bromide or Chloride; and occurs as a white, crystalline powder, readily soluble in water, and liquefying when exposed to the air, from which it greedily absorbs water and carbon dioxide. Dose of the base or its hydrochloride, gr. v–x. It may be injected hypodermically in 3 to 5 per cent. solution.

Piperazin possesses the valuable property of forming with uric acid a very soluble compound, the piperazin urate formed being seven times more soluble in water than is lithium urate, the former requiring but 50 parts and the latter 368 parts of water for solution. It is non-toxic, and devoid of powerful physiological effects, being well borne without ill results, even when administered for prolonged periods. It is non-irritant to mucous membranes, is readily absorbed from the stomach, and circulates in the blood unchanged, reaching the parts affected by gouty deposits in a condition in which it readily neutralizes and dissolves the latter, thus facilitating their removal from the body.

The administration of Piperazin in gout promptly reduces the redness and swelling of the affected joints, and is frequently followed by a discharge of gravel. The minimum daily dosage for this purpose is about 15 grains, which should be dissolved in half a pint of water, and the solution should be added to a pint or more of any convenient carbonated water, and be taken in divided doses through the day. When there is much pain and fever present, an equal quantity of Phenocoll Hydrochloride may be added,—but in preparing them, each agent should be dissolved separately and then mixed together, otherwise a precipitate will form in the solution. It gives marked relief in the pruritus of the uric acid diathesis due to the irritation of imperfect nitrogenous elimination. In solution it may be introduced into the bladder in order to dissolve vesical calculi of the uric character, and in gout it may be locally employed by hypodermic injection. A one per cent. solution, applied locally to open gouty sores, relieves the pain and reduces the inflammation. It should be tried in rheumatic arthritis of difficult diagnostic differentiation.

As a solvent for uric acid and urate concretions Piperazin is far superior to all other agents. Its extremely high price prevents its general use, though its cost has recently been reduced.

PISCIDIA, Jamaica Dogwood (Unofficial),—is the bark of the root of *Piscidia erythrina*, a tree of the nat. ord. Leguminosæ, growing in the West Indies. It occurs as a tough, fibrous bark, externally blackish, internally greenish, of a heavy, narcotic odor, and a bitter, acrid and astringent taste, containing a yellowish, resinoid substance named *Piscidin*. Its active principle has not yet been isolated. A fluid extract is on the market, of which the dose is ʒss–j, carefully increased.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Piscidia has a narcotic effect on many animals, and has been used in Jamaica for many years to stupefy fish, that they may be easily taken. It produces muscular relaxation, incoördination of movement, lowered sensibility, increased action of the heart and increase of the arterial tension by stimulation of the vaso-motor centre. Soon, however, the heart is weakened, vascular tension falls, and a tetanoid state results from stimulation of the spinal cord, with reduced reflex action. On the brain its effects resemble those of Opium, causing deep sleep without any unpleasant after results. It relieves pain in less degree, however, than Opium does, but its hypnotic action is greater. It also relieves cough and spasm, produces diaphoresis and salivation, and dilates the pupil. From toxic doses death occurs by asphyxia in animals. In man its action is probably the same, but in decidedly less marked degree.

Piscidia is used chiefly as a general nervous sedative. Its hypnotic and anodyne [illegible] are somewhat uncertain, but have in many cases been very decided. It is useful in whooping-cough and spasm, and has proved almost specific in many cases of neuralgia, while in others it has caused great gastric distress without the least anodyne effect.

PIX. Pitch,—is a resinous exudation from the stem of certain trees of the genera *Pinus* (Pines) and *Abies* (Firs and Spruces); and may also be obtained by the evaporation of wood-tar. [See PIX LIQUIDA below.] The first two of the following varieties are official.

Pix Burgundica, *Burgundy Pitch,*—the prepared resinous exudation of *Abies excelsa* or Norway Spruce (nat. ord. Coniferæ), a native of Europe and Northern Asia. Occurs in hard, brittle, opaque or translucent mass, with a shining, conchoidal fracture, reddish-brown color, taste aromatic and somewhat empyreumatic, not bitter; almost entirely soluble in glacial acetic acid. It is very fusible, and at the body-heat it softens and becomes adhesive. Used for plasters.

Pix Liquida, *Tar,*—is an empyreumatic oleo-resin obtained by the destructive distillation of the wood of *Pinus palustris* and other species of Pinus, (nat. order Coniferæ). Is thick, viscid, semi-fluid, blackish-brown, of acid reaction, terebinthinate odor, and sharp, empyreumatic taste, slightly soluble in water, soluble in alcohol, oils, and in solution of potassa or of soda. By distillation it yields an acid liquor named *Pyroligneous Acid* and an empyreumatic oil called *Oil of Tar*, (see OL. PICIS LIQUIDÆ, below), the residue being pitch. Its granular appearance is due to crystals of *Pyrocatechin*, $C_6H_4(OH)_2$, which occur either in the Pyroligneous Acid or in the tarry mixture. Dose, ʒj–ij daily, in ten-grain doses.

Pix Canadensis, *Canada or Hemlock Pitch* (Unofficial),—is the prepared resinous exudation of *Abies canadensis* (nat. ord. Coniferæ), the Hemlock Spruce of the U. S. and Canada. Its properties are much the same as those of Burgundy Pitch.

Preparations.

Emplastrum Picis Burgundicæ, *Burgundy Pitch Plaster,*—has of Burgundy Pitch 80, Olive Oil 5, Yellow Wax 15.

Emplastrum Picis Cantharidatum, *Cantharidal Pitch Plaster, Warming Plaster,*—has of Cerate of Cantharides 8, Burgundy Pitch to 100.

Oleum Picis Liquidæ, *Oil of Tar,*—a volatile oil distilled from Tar. Dark, reddish-brown (almost colorless when fresh), of tarry odor and taste, and acid reaction, readily soluble in alcohol. Contains a great variety of compounds, including Hydrocarbons, Phenols, Paraffin, etc., among the phenols being Creosote and Carbolic Acid. Is used locally and as an atomized inhalation.

Syrupus Picis Liquidæ, *Syrup of Tar,*—has of Tar 7½ per cent.; and is a sweetened Tar-water. Dose, ʒij–℥ss.

Unguentum Picis Liquidæ, *Tar Ointment,*—contains of Tar 50, Yellow Wax 12½, Lard 37½.

Infusum Picis Liquidæ, *Tar Water* (Unofficial),—made by shaking Tar 1 with Water 4 frequently during 24 hours, decanting and filtering. Is stimulant and diuretic. Dose, Oj–ij daily.

Vinum Picis Liquidæ, *Wine of Tar* (Unofficial),—Tar ℥xvj, Glycerin, White Wine, Honey, āā ℥viij, Acetic Acid ℥j, Boiling Water Ovj, shaken together and digested in a close vessel for two hours at 150° to 160°, then macerated for a few days, frequently shaken, strained and filtered.

Oleum Pini Sylvestris, *Oil of Scotch Fir* (Unofficial),—a colorless, fragrant oil, distilled from the leaves of *Pinus Sylvestris*, resembling Turpentine in action. Used by inhalation (ʒss to Oj of boiling water), or locally.

Retinol, *Resinol* (Unofficial),—obtained by the distillation of Burgundy pitch, occurs as a yellowish, oily liquid, boiling at temperatures above 536° F. Used as a solvent for a number of the newer remedies, as Cocaine, Aristol, Iodol, also Carbolic acid, Creosote, Phosphorus and many alkaloids.

Concentrated Extract of Pinus Canadensis (Unofficial),—is an aqueous, non-irritant astringent, prepared from the *Abies Canadensis* or Hemlock Spruce. It is said to have a specific tonic action upon mucous membranes. Two kinds are sold, one being called the "White" Extract,—in reality a golden yellow,—and the other the "Dark" Extract,—the former intended for use when it is desirable to avoid staining the linen. This preparation received the endorsement of Dr. J. Marion Sims, and has been extensively employed both locally and internally, as a topical application in uterine and vaginal catarrhs, and as a systemic remedy in catarrhal inflammation of the gastro-intestinal and broncho-pulmonary mucous membranes.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

PITCH is a gentle rubefacient when applied to the skin, but in some constitutions the Burgundy variety causes a vesicular and pustular inflammation if used extensively. It is generally employed as a basis for plasters, and is of benefit in lumbago, rheumatism, chronic pleurisy, painful joints, superficial neuralgiæ, etc., protecting the part from variations of temperature, and perhaps by the gentle pressure exercised stimulating the lymphatics and promoting absorption. It is supposed to have a special influence on the rectum, and in pill with Tar has been employed as a remedy for hemorrhoids. In applying adhesive plasters the hair should first be shaved off, and when about to be removed the plaster should be warmed, and a little Oil of Turpentine inserted between its edge and the skin.

CANADA PITCH is too soft for plasters, but is employed for the same purposes as the preceding. A volatile oil obtained from the same tree (Oil of Spruce, Oil of Hemlock) has been used for abortifacient purposes, endangering the life of the subject.

TAR is a complex mixture of resins and hydrocarbons, containing Creosote and Carbolic Acid, which give to it irritant qualities. Internally it is expectorant, and produces gastro-intestinal irritation, sometimes severe headache, giddiness and febrile phenomena. It is eliminated by the kidneys chiefly, which it stimulates, and may cause their congestion and increased diuresis. Externally it is a decided stimulant to the skin, often giving rise to considerable irritation and pain. It is also antiseptic, and in most of its effects it resembles the turpentines.

Tar is used as a local application in chronic scaly skin diseases, especially psoriasis and chronic eczema. As an atomized inhalation it is of decided benefit in bronchitis, pharyngitis, laryngitis and winter cough. Internally it may be employed with advantage in these affections, in hemorrhoids, bronchial catarrh, and phthisis. The best preparation for internal administration is the syrup, which is a sweetened tar-water, the sugar forming with the Tar a soluble compound.

PLANTAGO, Plantain (Unofficial),—is the leaf of *Plantago major*, and *Plantago lanceolata* (nat. ord. Plantaginaceæ), the common "Ribbed Grass." The pounded leaves applied as a paste, or the dry leaf powdered, are actively hemostatic, stopping hemorrhages speedily. Among the ancients it had a good reputation as a remedy for toothache and earache, which still adheres to it in Switzerland and other parts of Europe. In many other painful affections it is extremely efficient, especially in mastitis, rhus-poisoning, erysipelas, burns, scalds, wounds and bruises. A poultice of the leaves may be applied to the affected part, and an infusion administered internally. A fluid extract is sold in the shops, of which the dose is ♏ v–xv.

PLUMBUM, Lead, Pb,—is not official, but several of its salts are, namely,—the Acetate, Carbonate, Iodide, Nitrate and Oxide, of which the *Acetate* is the only one administered internally, the solutions of the *Subacetate* are the only liquid preparations, the *Oxide* (Litharge) is used as Emplastrum Plumbi, the *Nitrate* is used as a local stimulant or escharotic, the *Iodide* as an ointment for absorbent purposes, and the *Carbonate* as an astringent locally to inflamed surfaces. The metal occurs in nature chiefly as a Sulphide named *Galena*, also as an Oxide rarely, and in various saline combinations.

Official Salts of Lead.

Plumbi Acetas, *Lead Acetate* (*Sugar of Lead*), Pb $(C_2H_3O_2)_2 + 3H_2O$,—colorless, shining, prismatic crystals or scales, efflorescent, of faintly acetous odor and acid reaction, and a sweetish, astringent and metallic taste. Soluble in 2.3 of water and in 21 of alcohol at 59° F., in 0.5 of boiling water and in 1 of boiling alcohol. Dose, gr. ss–v.

Plumbi Carbonas, *Lead Carbonate* (*White Lead*), $(PbCO_3)_2Pb(HO)_2$,—a heavy, white, opaque powder, odorless, tasteless and insoluble in water or alcohol, but soluble with effervescence in acetic or in diluted nitric acid. Used locally as ointment, powder, or white paint.

Plumbi Iodidum, *Lead Iodide*, PbI_2,—a heavy, bright citron-yellow powder, odorless and tasteless, fusible and volatilizable by heat, soluble in about 2000 of water at 59° F., and in about 200 of boiling water. Used externally as an ointment. May be given internally in doses of gr. $\frac{1}{5}$ twice daily.

Plumbi Nitras, *Lead Nitrate*, $Pb(NO_3)_2$,—colorless, opaque, octahedral crystals, odorless, of sweetish, astringent and metallic taste and acid reaction, soluble in 2 of water at 59° F., almost insoluble in alcohol. Used locally as an astringent and deodorizer in solutions up to 1 per cent., also as an escharotic and a disinfectant.

Plumbi Oxidum, *Lead Oxide* (*Litharge*), PbO,—a heavy, yellowish, or reddish-yellow powder, odorless, tasteless and insoluble in water or alcohol, but almost wholly soluble with slight effervescence in dilute nitric acid. When heated in contact with charcoal it is reduced to metallic lead. Used as Lead-Plaster and sometimes with oil as an external application.

Preparations.

Liquor Plumbi Subacetatis, *Solution of Lead Subacetate* (*Goulard's Extract*),—an aqueous solution containing about 25 per cent. of the salt, prepared from Acetate of Lead 170, Oxide of Lead 100, and Distilled water to 1000. It is a clear, colorless liquid, of sweetish, astringent taste and alkaline reaction, of sp. gr. 1.195, and when added to a solution of acacia it produces a dense, white precipitate. Used locally as an astringent and cooling lotion, diluted usually with an equal quantity of water.

Liquor Plumbi Subacetatis Dilutus, *Diluted Solution of Lead Subacetate* (*Lead Water*),—has of the preceding 3, in Distilled Water to 100. Used locally as a mildly astringent and cooling lotion.

Ceratum Plumbi Subacetatis, *Cerate of Lead Subacetate*, (*Goulard's Cerate*),—has of the same solution 20 parts with 80 of Camphor Cerate, freshly prepared, as it becomes rancid easily. Used as an astringent and protective application.

Emplastrum Plumbi, *Lead Plaster* (*Diachylon Plaster*),—Oxide of Lead 32, Olive Oil 60, rubbed together and boiled with 10 parts of water. Is white, pliable and tenacious, free from greasiness or stickiness, and should be entirely soluble in warm Oil of Turpentine. A good protective in abrasions and bed-sores, and the basis of many other plasters.

Unguentum Diachylon, *Diachylon Ointment*,—has of Lead Plaster 50, Olive Oil 49, Oil of Lavender Flowers 1. Used locally in eczema and other cutaneous disorders.

Unguentum Plumbi Carbonatis, *Ointment of Lead Carbonate*,—has of the Carbonate in very fine powder 10, Benzoinated Lard 90. Used as a dressing for burns.

Unguentum Plumbi Iodidi, *Ointment of Lead Iodide*,—has of the Iodide in very fine powder 10, Benzoinated Lard 90. Used locally to promote absorption of glandular tumors.

Oleatum Plumbi, *Oleate of Lead* (Unofficial),—a 20 per cent. solution of Oxide of Lead in Oleic Acid. A soft, yellowish ointment, for local use.

Physiological Actions.

Lead-salts are all more or less poisonous, but metallic Lead is inert until converted into a soluble salt by the acids of the stomach. The Acetate in large doses is emetic, so that acute lead-poisoning is rare. Its chief phenomena are intense gastro-intestinal irritation, vomiting, paralysis, coma and collapse.

Chronic lead-poisoning (plumbism) has its principal sources in *pure* water conveyed by leaden pipes, the use of hair dyes, handling of printing-type, working in the smelting of lead ores, etc. It produces loss of appetite, emaciation, pallor and constipation, followed by slowing of the heart's action, and accompanied by violent colic (enteralgia), muscular impairment evinced by paralysis of the extensor muscles of the forearm (drop-wrist), impaired sensibility and albuminuria. Occasionally aphonia, vertigo, gastralgia, headache, stupor and convulsions are manifested. Rheumatism without fever or tenderness in the joints, which however are red and swollen, is a frequent symptom. A blue line (sulphide) is seen along the margin of the gums in those who do not clean their teeth. Neuralgic troubles may arise, and amaurosis often occurs from impairment of the optic nerve. The metal becomes deposited in the affected muscles and other tissues, and probably acts by impairing the isolating power of the nerve-fibres, thus enfeebling the nerve-currents. It also produces contraction of the smaller vessels, and may affect any muscles of the body, also the brain, producing delirium, coma, and convulsions. Abortion is a frequent result, either through an influence on the muscular tissue of the uterus, or from a toxic action on the fœtus. Death may occur from extension of the paresis to the muscles of respiration, from gradual impairment of nutrition, or from convulsions and coma, a form of disease known as Lead-encephalopathy.

Astringency is the chief quality of the lead salts; they lessen secretion, contract muscular tissue and then destroy its contractile power, slow both the heart and the respiration, and in time destroy the red blood-corpuscles. Lead enters the blood as an albuminate, in which form also it is retained by the tissues. It is slowly excreted by the liver, kidneys, skin and mammary glands. That which escapes by the bile is reabsorbed by the bowel, and is again excreted by the intestinal glands, escaping with the fæces as a sulphide. It lessens the excretion of uric acid.

Antagonists and Incompatibles.

In acute poisoning, as by the Acetate, the antidotes are Sodium or Magnesium Sulphate and Sodium Phosphate. The stomach should be evacuated, and albuminous drinks and Opium given to allay irritation. Chronic poisoning is best treated by Atropine and Iodides, the latter to saturation of the system. Sulphurated Potassa Baths (℥j or more in water) are also very useful. Incompatibles are Mineral Acids and their salts, vegetable acids, alkalies, vegetable astringents, Potassium Iodide, albuminous solutions, Opium, and all natural waters containing Lime, Sulphates, Carbonates, and Carbonic Acid.

THERAPEUTICS.

Lead salts are chiefly used as astringents and hemostatics. The solution of the Subacetate diluted with 4 parts of glycerin and water is locally employed in many skin-diseases, especially in eczema, lichen, impetigo, and erythema; also in catarrhal discharges of muco-purulent character from the ear, vagina, and urethra, particularly in gonorrhœa and leucorrhœa. Inflammations of external parts are constantly treated by the lotion of "Leadwater and Laudanum" (Liquor Plumbi Subacetatis Dilutus, 7 parts to 1 of Tinctura Opii). Though the constituents of this lotion are chemically incompatible, it is a valuable sedative and astringent. The ACETATE, in 5-grain doses every three hours, is an efficient internal styptic in various hemorrhages, particularly in hemoptysis, hematemesis, and gastric ulcer, lowering the action of the heart and constringing the vessels. Its astringent action is well manifested in bronchorrhœa and other pulmonary affections with excessive secretion. It is well used in diarrhœas, gr. ij with gr. j of pulverized Opium in choleriac diarrhœa, and smaller doses for the summer complaint of children. In caseous pneumonia the Acetate is highly recommended as the best remedial agent, combined with Opium and Digitalis; and in cardiac hypertrophy it may be often used to lower the action of the heart. It is also serviceable in whooping-cough with profuse bronchial secretion, and in humid asthma.

The CARBONATE is only used externally, to protect irritated surfaces, as erythema, erysipelas, intertrigo, etc., in which it may be dusted over the surface if unbroken. The official ointment, or white paint mixed with linseed oil, is an excellent application to burns or scalds, but if applied on the broken cuticle it may prove rapidly poisonous.

The IODIDE is employed externally as an ointment to enlarged lymphatic glands and enlarged spleen, also to chronic eczema and psoriasis. It has been used internally to reduce a malarial spleen.

The NITRATE is an efficient application to fissured nipples, gr. x to ℥j of glycerin. In powder, dusted over unhealthy granulations, and sanious ulcers resulting from onychia, it gives prompt relief after a brief period of pain. It is said to have cured cases of epithelioma when used in the same manner. In solution (gr. x to the ℥) it is a most efficient deodorizer against the fetor from gangrenous sores, ozæna and other offensive discharges. Pharmaceutically it is used in the preparation of the Iodide.

The OXIDE is used in the preparation of plasters, and most of the other salts of lead. It is not employed internally, but may be used as an external application mixed with sweet oil in superficial burns, but care should be taken that it is only applied to the unbroken skin.

PODOPHYLLUM, May Apple,—is the rhizome and rootlets of *Podophyllum peltatum* (Mandrake), an herbaceous perennial of the nat. ord. Berberideæ, growing in the woodlands of Canada and the U. S., having a pale-green stem about a foot high, with a single white flower at its summit. The rhizome is horizontal, ⅕ inch thick, consisting of joints about 2 inches long, of orange-brown color externally, white and mealy internally, inodorous, taste bitter and acrid. Its active principle is a *Resin* which is official, and is a compound of several resins. It probably contains the alkaloid *Berberine*, which is also found in Berberis, Hydrastis and several other plants. Dose, gr. v–xx.

Preparations.

Extractum Podophylli, *Extract of Podophyllum.*—Dose, gr. v–x.
Extractum Podophylli Fluidum, *Fluid Ext. of Podophyllum.*—Dose, ♏j–xxx.
Resina Podophylli, *Resin of Podophyllum.* (*Podophyllin*),—is precipitated from a concentrated tincture by acidulated water. Soluble in alkaline liquids and partly so in ether. Contains *Podophyllotoxin*, *Picropodophyllin*, *Podophyllinic* and *Protocatechuic Acids.* Dose, gr. ⅛–j, in pill. Is an ingredient of Pil. Catharticæ Vegetabiles.

Podophyllum is a tonic-astringent and resin-bearing purgative, having action similar to that of Jalap but slower, like Calomel taking 6 to 10 hours to produce its cathartic effect. It increases the intestinal secretions and the flow of bile, causing copious watery stools, with considerable griping pain and some nausea. The powder is irritant to the respiratory passages and to the skin.

The Resin is an excellent purgative in cases of habitual constipation or portal congestion, and is a useful cholagogue. Laxative effects are produced by small doses (gr. ⅛–¼), but grain-doses are necessary for its full action. It should be combined with Hyoscyamus, Belladonna or Cannabis Indica, in order to counteract its griping tendency. It is an efficient derivative in cases of catarrhal or malarial jaundice, and is recommended in very small doses for prolapse of the rectum, remittent fevers of children, dyspepsia, hepatic derangement, bilious vomiting and headache, and in the vomiting and diarrhœa of gastro-enteritis.

POLYGONUM, *Smart-Weed, Water-pepper* (Unofficial),—is the plant *Polygonum Hydropiperoides*, nat. ord. Polygonaceæ, indigenous to the U. S., having narrow, lanceolated leaves and slender spikes of whitish flowers. It contains *Tannin* and an active principle, *Polygonic Acid*, which is green, crystallizable, insoluble in water, but soluble in alcohol, ether, and chloroform.

Extractum Polygonum Fluidum, *Fluid Extract of Polygonum* (Unofficial).—Dose, ♏x–ʒj.

Extractum Polygoni, *Extract of Polygonum* (Unofficial).—Dose, gr. j–v.

Smart-weed has a pungent, acrid taste, producing a sensation of heat in the stomach, and a peculiar tingling throughout the system. It stimulates the action of the heart, raises the arterial tension, increases the warmth of the surface, promotes the cutaneous, bronchial and renal secretions and the menstrual flow. It is an efficient diuretic, emmenagogue and aphrodisiac. The juice applied to the skin excites inflammation and vesication.

Amenorrhœa from functional inactivity of the uterine system is remarkably benefited by this remedy in ʒss doses of the fluid extract four times daily for a week before the expected period. It has considerable influence over functional impotence, but produces aching pains in the hips and loins, and a sense of weight and fullness within the pelvis. It has also been used with benefit in diarrhœa, dysentery and gravel; and locally in mercurial salivation and the sore mouth of nursing women.

PONGAMIA, **Kurung Oil** (Unofficial),—is a yellow oil expressed from the seeds of *Pongamia glabra*, an Indian tree of the nat. ord. Leguminosæ. It has been used for many years in India for skin affections, and in professional hands has proven an excellent application in pityriasis versicolor, rubbed in twice daily. It promises to be a valuable remedy in parasitic diseases of the skin, is not irritating and does not discolor the surface to which it is applied.

POTASSIUM, **Kalium**, K,—is represented by a number of official salts, which are colorless or white, sometimes anhydrous, and generally soluble readily in water. The metal itself is not official. The chief source of its salts is the ash remaining after the combustion of plants or trees, which contains the Carbonate, from which most of the other salts are prepared. There are also two subsidiary sources, viz.—the Nitrate, which is found native; and the Bitartrate, which, under the name of Crude Tartar or Argol, is deposited during the fermentation of wine. It is distinguished from all other bases (except Magnesium, Sodium and Ammonium) by not being precipitated by Ammonium Sulphide or Ammonium Carbonate. It is positively known by the violet color it imparts to flame, by its very sparing solubility when converted into the Bitartrate, and by its precipitation by Platinum Perchloride.

Potassium Salts and their Preparations.

Potassa, *Potassium Hydrate, Caustic Potash*, KOH,—a very deliquescent, white, hard and dry solid, of very acrid and caustic taste and strongly alkaline reaction, soluble in 0.5 of water and in 2 of alcohol. It is a powerful and deeply-acting escharotic, and should be kept in well-stoppered bottles made of hard glass.

Potassa cum Calce, *Potassa with Lime* (*Vienna Paste*),—a grayish-white, deliquescent powder, consisting of equal parts of Potassa and Lime rubbed together. A milder and more manageable caustic than the preceding.

Liquor **Potassæ**, *Solution of Potassa*,—contains about 5 per cent. of Potassium Hydrate, and is prepared by dissolving Potassium Bicarbonate 85, in 400 of Distilled Water, 40 of Lime in the same quantity of Distilled Water, boiling, mixing the solutions gradually, again boiling, and when cold adding Water up to 1000 parts, straining, settling, and decanting the clear solution. Or, by dissolving 56 of Potassa in 944 of Distilled Water. Is a clear, colorless, odorless liquid, of acrid and caustic taste, and strongly alkaline reaction. Dose, ♏ v–ʒ ss, well diluted with water.

Potassii **Acetas**, *Potassium Acetate*, $KC_2H_3O_2$,—a white, satiny, crystalline mass, or a granular powder, very deliquescent, odorless, of pungent, saline taste, and a neutral or faintly alkaline reaction, soluble in 0.4 of water and in 1.9 of alcohol at 59° F. Dose, gr. v–ʒ j.

Potassii **Carbonas**, *Potassium Carbonate*, K_2CO_3,—a white, crystalline or granular powder, very deliquescent, odorless, of alkaline taste and reaction, soluble in 1.1 of water at 59° F., insoluble in alcohol. Dose, gr. ij–xx.

Potassii **Bicarbonas**, *Potassium Bicarbonate*, $KHCO_3$,—colorless prisms of saline and alkaline taste and alkaline reaction, soluble in 3.2 of water at 59° F., decomposed by boiling water, almost insoluble in alcohol. Dose, gr. v–xxx.

Potassii **Chloras**, *Potassium Chlorate*, $KClO_3$,—colorless prisms or plates, of pearly lustre, of cooling, saline taste and neutral reaction, soluble in 16.7 of water at 59° F. and in 1.7 of boiling water; slightly soluble in mixtures of alcohol and water, insoluble in absolute alcohol. Dose, gr. v–xx.

Potassium Chlorate should be kept in glass-stoppered bottles, and great caution should be observed in handling the salt, as dangerous explosions are liable to occur when it is mixed with organic matters (cork, tannic acid, sugar, etc.), or with sulphur, antimony sulphide, phosphorus, or other easily oxidizable substances, and either heated directly or subjected to trituration or concussion. It should not be mixed with glycerin in the presence of a free acid.

Trochisci **Potassii Chloratis**, *Troches of Potassium Chlorate*,—each troche contains about 4½ grains of the salt, with sugar, tragacanth, and spirit of lemon. Dose, j–iij, slowly dissolved in the mouth.

Potassii **Citras**, *Potassium Citrate*, $K_3C_6H_5O_7 + H_2O$,—a white granular powder, or transparent, prismatic crystals, odorless, of cooling, saline taste, and neutral reaction, soluble in 0.6 of water, very soluble in boiling water, sparingly soluble in alcohol. Dose, gr. x–xxx.

Potassii **Citras Effervescens**, *Effervescent Potassium Citrate*,—consists of Pot. Bicarb. 90, Citric Acid 63, Sugar 47, powdered, mixed to a paste, dried and again powdered. Dose, ʒ j–ij, in a glass of water, as an effervescent drink.

Liquor **Potassii Citratis**, *Solution of Potassium Citrate* (Mistura Potassii Citratis),—contains about 9 per cent. of the anhydrous salt, together with small amounts of citric and carbonic acids. Prepared by dissolving Citric Acid 6, and Pot. Bicarb. 8, each in water 40, filtering the solutions separately, and adding in each case enough water to bring to 50 parts, then mixing the two together. Dose, ℥ ss–℥ j or more.

Potassii **Nitras**, *Potassium Nitrate* (*Saltpetre, Nitre*), KNO_3,—colorless, transparent prisms of a crystalline powder, of pungent, cooling and saline taste and neutral reaction; soluble in 4 of water at 59° F. and in 0.4 of boiling water; almost insoluble in alcohol. Is a constituent of Argenti Nitras Dilutus. Dose, gr. v–xx, well diluted.

Charta **Potassii Nitratis**, *Potassium Nitrate Paper*,—is unsized paper immersed in a solution of 20 parts of the salt in 80 of distilled water, and dried. Used for inhalation, the fumes from the burning paper being inhaled in asthma.

Potassii Sulphas, *Potassium Sulphate*, K_2SO_4,—colorless, hard, rhombic prisms, of sharp, saline and bitter taste and neutral reaction, soluble in about 9.5 of water at 59° F., and in 4 of boiling water, insoluble in alcohol. Dose, gr. xx–℥ ss, well diluted.

Potassii Bitartras, *Potassium Bitartrate, Acid Tartrate of Potash* (*Cream of Tartar*), $KHC_4H_4O_6$,—colorless rhombic crystals, or a white, gritty powder, of acidulous taste and acid reaction; soluble in about 201 of water at 59° F., and in about 16.7 of boiling water, very slightly soluble in alcohol. Is a constituent of Pulvis Jalapæ Compositus. Dose, gr. xx–℥ ss.

Potassii et Sodii Tartras, *Potassium and Sodium Tartrate* (*Rochelle Salt*), $KNaC_4H_4O_6 + 4H_2O$,—colorless, rhombic crystals, or a white powder, of cooling and slightly saline and bitter taste, and neutral reaction; soluble in 1.4 of water at 59° F., very soluble in boiling water, almost insoluble in alcohol. Is a constituent of the following preparation. Dose, ℥ss-j.

Pulvis Effervescens Compositus, *Compound Effervescing Powder* (*Seidlitz Powder*),—each powder has of the preceding salt 120 grains, of Sodium Bicarbonate 40 grains, mixed in one paper; and of Tartaric Acid 35 grains in another paper. Dose, 1 or 2 pair, dissolved separately in water and the solutions poured together.

Potassii Silicas, *Potassium Silicate, Soluble Glass,* K_2SiO_3 (Unofficial),—is used in solution of a syrupy consistence for the preparation of immovable dressings for fractured limbs, etc. (See under Silicates.)

The **Arsenite** is described under Arsenic,—the **Bromide** under Bromum,—the **Bichromate** under Acidum Chromicum,—the **Iodide** under Iodum,—the **Cyanide** and **Ferrocyanide** under Acidum Hydrocyanicum,—the **Hypophosphite** under Phosphorus,—the **Permanganate** under Manganum,—the **Nitrite** under Amyl Nitris,—and **Sulphurated Potassa** under Sulphur.

Physiological Action.

Caustic Potash, like other caustic alkalies, destroys the tissues by combining with their water, dissolving the albumen and saponifying the fats, converting the tissue to which it is applied into a moist, gray slough, with considerable surrounding inflammation. Internally it acts as a powerful corrosive poison, destroying the mucous membrane of the parts with which it comes in contact, and giving rise to intense pain, diarrhœa, convulsions and delirium. Unless speedily rejected or neutralized it causes death from inflammation of the larynx, from the gastro-intestinal lesions, or after some time from stricture of the œsophagus. Liquor Potassæ, containing over 5 per cent. of the pure Potash, possesses in a degree the same caustic properties, and should never be administered undiluted. It neutralizes the acids in the stomach, and in the blood exists chiefly as the Carbonate, being eliminated with the urine, which it renders alkaline. If its use be continued too long it impairs the blood, and renders the subject anæmic.

Potassium Salts in large doses are cardiac poisons, muscular paralyzers, poisonous to protoplasm, especially nerve tissue, and destructive to the ozonizing functions of the blood. They increase the saliva, promote oxidation and stimulate retrograde metamorphosis; and are therefore waste-producers. In small doses on an empty stomach they promote the formation of acid gastric juice by favoring the outward osmosis of its constituents from the blood; in larger doses they act chemically on the stomach contents, neutralizing its free acids, and disordering digestion. The Bicarbonate, given on an empty stomach, enters the blood unchanged, meets the neutral phosphate of sodium and is decomposed, acid phosphate of sodium being formed, which renders the urine more acid. On a full stomach it is decomposed by the acids of the gastric juice, increases the alkalinity of the blood and makes the urine less acid. The Salts of Potassium with Vegetable Acids (Acetate, Citrate, Tartrate, etc.) enter the blood in their own form, are there decomposed, forming free CO_2, and are converted into alkaline carbonates, in which form they are eliminated, alkalinizing the blood and the urine. They are diuretics also, increasing the urinary water and solids, but decreasing the uric acid by causing increased oxidation. The Mineral Salts (Nitrate, Chlorate, etc.) are not decomposed in the blood, but are eliminated in their own form, the Nitrate being a most active diuretic, the Chlorate irritating the kidneys, depressing the heart, causing albuminuria, and impairing the ozonizing function of the blood. In large doses these salts decompose the red blood-corpuscles and paralyze the motor ganglia of the heart. The Chlorate does not part with its oxygen in the system, as generally believed. The Sulphate is chiefly purgative in its action, but acts harshly, and in overdoses has caused death.

The action of the remaining Potassium salts is described under the titles of their acid and other constituents, to which their effects are chiefly referable.

Antagonists and Incompatibles.

Poisoning by caustic alkalies is treated by the dilute Vegetable Acids, as vinegar, cider, lemon-juice;—then demulcent drinks and oils to protect the mucous membrane, and the usual measures to support vitality. The Alkalies and their Carbonates are incompatible with the acids and also with metallic salts, and the Caustic Alkalies decompose most of the alkaloids.

THERAPEUTICS.

CAUSTIC POTASH is used locally to destroy morbid or cicatricial tissue, to cauterize the wounds resulting from bites of animals or stings of insects, to form issues or to open deep-seated abscesses, and to destroy chancres, malignant pustules, nævi, warts, etc. Its action is deep and severe, and it is best employed in the form of Potassa cum Calce, which is far more manageable.

LIQUOR POTASSÆ is used internally as a free alkali to neutralize excess of acid in the stomach, blood and secretions, as an antilithic in the uric acid diathesis, also for acne, boils, and obesity. Locally it is employed to soften the nail in in-growing toe-nail, and diluted to relieve pruritus and remove scales in various skin-diseases. In small doses with a vegetable bitter tonic before meals it acts well in atonic dyspepsia, increasing the flow of the gastric juice by direct stimulation of the gastric mucous membrane. If given after meals in acid dyspepsia large doses are necessary for temporary alleviation by neutralizing the food acids. These remarks concerning acidity and dyspepsia apply equally well to the BICARBONATE, which is used for the same purpose, and while possessing all the virtues of the potassium salts, is without any corrosive or irritant action. It is also useful in simple gastralgia or cardialgia; and in cystitis, gonorrhœa, etc., where there is acid urine, it renders the urine less irritating and soothes the inflamed surfaces. Acute and chronic rheumatism and rheumatoid arthritis are much benefited by an alkaline treatment in patients of sufficient bodily vigor to stand its lowering effects. The Bicarbonate is also used to alkalinize the blood and secretions in lithæmia, jaundice, many cutaneous eruptions, and in diabetes; also locally as a lotion for fetid perspiration of the feet and axillæ, acne and acute eczema. The Carbonate is diuretic, antacid and antilithic, but is seldom used internally, being too irritant, and the Bicarbonate having all its virtues without its objectionable qualities. Locally a solution (ʒj to the ℥) is said to be effectual as a remedy for pruritus vulvæ, and one of half the above strength is used in freckles, sunburn and tan of the epidermis, in moist eczema and the itching of urticaria.

The Acetate, Citrate and Tartrate are good purgatives in doses of ʒij to ʒiv, and in smaller doses are much employed as alkalinizers of the blood and urine, diuretics, etc. Of these vegetable potassium salts the Acetate is the most certain diuretic, the Bitartrate is the most active cathartic, while the Citrate is the most reliable diaphoretic and the best agent to use to alkalinize the urine for any length of time, it having the least injurious effect on the blood or on the digestion. In lithæmia these salts are given to promote oxidation, and by keeping the urine alkaline they may reduce small calculi of the uric acid variety. In acute rheumatism and fevers they act as antacids in the blood, as febrifuges by promoting diaphoresis, and as sedatives to the general nervous system. As an agreeable laxative no preparation surpasses the Bitartrate in 2 to 4 drachm doses made into a paste with orange marmalade or any other conserve. It is also used in Infusion of Juniper as a diuretic in general cardiac dropsy, and without the Juniper in acute desquamative nephritis. In cases of acute dysentery with scorbútic symptoms, as seen among miners, sailors, etc., a full purgative dose of this salt (℥ss or more), has acted most beneficially as a preliminary to other treatment; and in many cases has proven to be the only remedy required.

Potassium Chlorate is much employed locally in solution (ʒss to the ℥) as a deodorizer and detergent wash in inflamed, ulcerated and aphthous conditions of the mouth. On unhealthy mucous membranes generally it exercises an alterative action for the better, but if too long used it will keep up a state of chronic irritation. In mercurial salivation it is of great benefit, and in dilute solution (gr. x to the ℥) it is an efficient application to unhealthy sores and ulcers, as a wash for foul sinuses or cavities, and as an injection in chronic affections of the bladder. The powdered salt may be applied to aphthæ, and dusted over epithelioma will alter the action, diminish the pain, check the growth and promote cicatrization. Internally this salt has been administered in the mistaken idea that it parts with its oxygen in the system, but it is now shown that it is excreted unchanged. Setting up congestion and irritation of the kidneys it is highly dangerous in large doses or if used for any length of time, but is constantly administered in diphtheria, chronic bronchitis, purpura, hematuria, ovarian tumor, pseudo-membranous laryngitis, scarlatina, typhoid fever, chronic cystitis, etc. When used internally it should be given in small doses (gr. xx in 24 hours for an infant, gr. xxx in 24 hours for a child of 2 to 4 years, and ʒiss for an adult in the same time), and the action of the heart and the kidneys should be carefully watched. It should never be prescribed with Potassium Iodide lest the poisonous Iodate be formed, nor with the Syrup of the Iodide of Iron, lest it liberate the Iodine, and cause severe gastritis. Strong acids and acid sulphates decompose it, and it forms explosive compounds with easily oxidizable substances, as Sugar, Sulphur, Tannin, Sodium or Potassium Hypophosphites, Catechu, Glycerin, etc.

For the combination of Potassium Chlorate with the Tincture of the Chloride of Iron, as a gargle, see under CHLORUM.

The NITRATE has been much employed as a refrigerant diaphoretic and diuretic in febrile and inflammatory affections, especially in inflammation of the trachea and bronchi, pneumonia and rheumatism, but its action is uncertain and it is now giving place in these disorders to more efficient agents. The fumes of burning nitre paper (Charta Potassii Nitratis) are a useful inhalation in some forms of spasmodic asthma.

The SULPHATE is used in teaspoonful doses in water as an hepatic stimulant and a mild cathartic, increasing the secretions of the intestinal glandular apparatus. Its action is sometimes harsh, and death has resulted from overdoses.

POTASSIUM AND SODIUM TARTRATE, or Rochelle Salt, is the chief aperient agent in Seidlitz Powders. In doses of ℥ss–j it is a gentle and cooling laxative, and in drachm doses frequently repeated it is used to render the urine alkaline, and as an antilithic.

The therapeutics of the other Potassium Salts are described as noted on page 346.

PRINOS, Black Alder (Unofficial),—is the bark of *Prinos verticillatus*, or Winterberry, a shrub of the nat. ord. Aquifoliaceæ, indigenous in Canada and the U. S., having small, white flowers, and a globose, six-seeded, bright-red berry, which grows in clusters and is persistent all winter. The bark occurs in thin, slender fragments, of a brownish-ash color externally, and a pale-green or yellow internally; taste bitter and slightly astringent. It contains an amorphous, yellow and bitter principle, also tannin, sugar, starch, wax, resin, etc. The bark may be given in substance in doses of ʒ ss, or a decoction (ʒij in Oiij boiled to a quart) in doses of ℥j–ij.

Black Alder is astringent and tonic, and has been used in intermittent fever, diarrhœa, and chronic cutaneous diseases. In the latter class of disorders it may be applied locally.

PRUNUM, Prune,—is the fruit of *Prunus domestica*, the Plum tree (nat. ord. Rosaceæ), indigenous to Western Asia, but cultivated in most countries of temperate climate. The dried fruit (Prune) is oblong, shrivelled, of blackish-blue color, having an almond-shaped seed. Prunes contain sugar, pectin, albumen, malic acid and salts. They are a constituent of Confectio Sennæ.

Prunes are laxative and nutritious, and are freely used as a food and sweetmeat, but in excess may give rise to flatulent colic from the indigestibility of their skins. Stewed prunes is an excellent dish for constipation in children, and may be made more effective by the addition of a little Senna.

PRUNUS VIRGINIANA, Wild Cherry, — is the bark of *Prunus serotina*, or Wild Cherry, a large forest tree of the nat. ord. Rosaceæ, growing in Canada and the U. S. The bark should be collected in autumn from the large branches only, and comes in curved pieces $\frac{1}{12}$ inch or more thick, of greenish or yellowish-brown color externally, and astringent, aromatic and bitter taste. On maceration in water it develops a distinct odor of bitter almonds. It contains tannin, gallic acid, resin, starch, etc., also *Amygdalin* and *Emulsin*, which by their mutual reaction in the presence of water, produce *Hydrocyanic Acid* and a *Volatile Oil* resembling that of Bitter Almond. [See *ante*, under AMYGDALA and ACIDUM HYDROCYANICUM.] Dose of the powdered bark, ʒss–j.

Preparations.

Extractum Pruni Virginianæ Fluidum, *Fluid Extract of Wild Cherry.*—Dose, ʒ ss–j.

Infusum Pruni Virginianæ, *Infusion of Wild Cherry,*—4 per cent. Dose, ℥ ss–ij. Should be made with cold water.

Syrupus Pruni Virginianæ, *Syrup of Wild Cherry,*—15 per cent. Dose, ʒ j–iv.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Wild Cherry is an aromatic bitter tonic, increasing appetite, aiding digestion, and thus promoting the constructive metamorphosis. The presence of a volatile oil gives it a local stimulating action on the alimentary canal in common with Serpentaria, Cascarilla and other members of the same class. Hydrocyanic Acid being yielded by it in the presence of cold water, results in imparting a sedative action to its preparations, calming irritation and diminishing nervous excitability. Very large doses reduce the action of the heart.

The preparations of Wild Cherry are used in catarrhal conditions of the bronchial mucous membrane, in the hectic of phthisis and scrofula, with palpitation of the heart, and a debilitated stomach; a collection of symptoms often observed in consumptive subjects, to whom it is a very useful palliative. Cough is supposed to be especially amenable to its influence, and hence it has become a matter of daily routine to prescribe the syrup as an ingredient of cough-mixtures. The infusion is an excellent stomachic tonic, and may be administered with great benefit in dyspepsia and in convalescence from acute disease.

PULSATILLA, Pasque-flower (*Meadow Anemone*),—is the herb, collected soon after flowering, of *Anemone Pulsatilla* and *Anemone pratensis* (Pulsatilla nigricans), small herbal plants of the same natural order (Ranunculaceæ) to which Aconite belongs. They inhabit Europe and Siberia, have large, purple flowers and are inodorous and very acrid. Pulsatilla contains a very acrid yellow oil, which in the presence of water is gradually changed to *Anemonin*, $C_{15}H_{12}O_6$, a volatile, crystallizable, camphoraceous principle, soluble in chloroform, nearly insoluble in ether or water; and *Anemonic Acid*, $C_{15}H_{14}O_7$, a white, crystalline, tasteless powder, which may be formed also by the action of alkalies on Anemonin.

Anemone-patens (Pulsatilla Nuttaliana), an inhabitant of the United States, which sometimes has whitish-colored flowers, was an official Pulsatilla in the U. S. P. 1880.

There are no official preparations, but a tincture may be made according to the pharmacopœial directions for Tincturæ Herbarum Recentium (1 in 2), of which the dose is ♏$\frac{1}{10}$–♏x. The imported homœopathic tincture has equal parts of the expressed juice and alcohol, and is generally a very good preparation.

Anemoninum, *Anemonin* (Unofficial),—the active principle. Dose, gr. $\frac{1}{10}$–ij in pill.

PHYSIOLOGICAL ACTION.

Pulsatilla is a local irritant, the fresh juice producing numbness and tingling in the part to which it is applied, and may excite violent inflammation of the skin with vesicular or pustular eruption, and if swallowed severe irritation of the gastro-intestinal mucous membrane. On the tongue it produces symptoms like those from Aconite, viz.—tingling and burning, followed by numbness. Internally it lowers the heart and arterial tension, reduces respiration and temperature, dilates the pupils, produces nausea and vomiting, diaphoresis and diuresis, and paralyzes the motion and sensibility. Stupor, coma and convulsions may be caused by a toxic dose. Most of these effects have been observed on rabbits. The active principle (Anemonin) is volatile, hence the herb must be fresh to be suitable for medicinal use.

Antagonists and Incompatibles.

Alcohol, Opium and Digitalis are the physiological antagonists. Incompatibles are the caustic alkalies, Tannic Acid and the metallic salts.

THERAPEUTICS.

Pulsatilla is a very efficient remedy if a fresh preparation be employed. It was highly praised by Störck for amenorrhœa, corneal opacities, cataract, paralyses, rheumatism, old ulcers, constitutional syphilis and scaly skin diseases. On the generative organs it seems to have a specific action, and is an excellent remedy in functional amenorrhœa, dysmenorrhœa, menstrual suppression from fright or chill, and leucorrhœal discharges with back-pains and nervous depression. Epididymitis and orchitis are often controlled and even dissipated by very small doses (♏$\frac{1}{10}$–$\frac{1}{4}$) every 2 hours. It quickly relieves dyspepsia or subacute gastritis, with white-coated tongue, no taste or a greasy sensation in the palate, nausea, flatulence, heartburn, etc. Many acute inflammations of mucous surfaces with mucous or muco-purulent discharges, as coryza, otitis (externa and interna), rhinitis, bronchitis, conjunctivitis, etc., are greatly benefited by 5 to 10-drop doses every 4 hours and locally ʒj–ij of tincture to ℥iv of water as a lotion. A similar use of this remedy has proven of great benefit in many cutaneous affections, especially eczematous eruptions, syphilides, and ulcers of indolent character. It is also said to be efficiently employed in acute cerebral and spinal meningitis, subacute rheumatism of the small joints, rheumatic gout, chronic vesical and nasal catarrhs, the gastro-enteric symptoms of remittent fever and measles, ophthalmia neonatorum, strumous ophthalmia with profuse but bland discharge, acute and subacute inflammations of the middle ear, and in left-sided clavus, hemicrania and infra-mammary pain. An extract of the root has proved efficient against tapeworm.

Coughs which are loose by day but dry and tickling on lying down at night are greatly benefited by Pulsatilla. Anemonin in doses of gr. ½–j has been found extremely useful in whooping-cough and other coughs of irritative character.

PYRETHRUM, Pellitory,—is the root of *Anacyclus Pyrethrum*, a plant of the nat. ord. Compositæ, native of Northern Africa, but cultivated in Europe. The root is 2 to 4 inches long, ½ inch thick, annulate above, wrinkled below, externally a dark grayish-brown, internally brownish-white; the bark thick, containing two circles of resin-cells surrounding slender wood bundles and medullary rays; inodorous, pungent and acrid. It contains an alkaloid, *Pyrethrine*, also inulin, tannin, mucilage, etc., with a brown *Resin* and two fixed oils. Dose, as a masticatory, ʒ ss–j.

Pyrethrum Roseum, *Persian Pellitory* (Unofficial),—is indigenous to Western Asia, and resembles Chamomile in appearance. The flower-heads are used in powder to kill insects, 4 grains killing a fly in a vial in 2 or 3 minutes.

Tinctura Pyrethri, *Tincture of Pyrethrum*,—20 per cent. Not used internally.

Physiological Action and Therapeutics.

Pellitory is an irritant sialogogue. When chewed it causes a pricking sensation in the tongue and fauces, with heat, acridity, pungency and a copious flow of saliva and buccal mucus. Large doses may cause bloody diarrhœa, tetanoid spasms, accelerated pulse, and profound stupor. Applied to the skin it acts as a rubefacient, the powder inhaled as a sternutatory. It stimulates the local nerves and vessels of the mouth and salivary glands by direct irritant action, but soon depresses the nerves and blunts their sensibility.

Pellitory is chewed as a masticatory and sialogogue in paralysis of the tongue, rheumatic and neuralgic affections of the head and face, and pain from carious teeth. Its powder has been recommended as a sternutatory in chronic catarrh of the frontal sinuses. As a gargle or lotion (ʒ iij to Oj) it is very useful for relaxed uvula and as a mouth-wash. When used for toothache a few drops of the tincture should be inserted into the cavity on cotton or wool. Used as a sialogogue it is an efficient agent to secure the rapid elimination of Iodine from the system in chronic poisoning thereby.

QUASSIA,—is the wood of *Picræna excelsa*, a large tree of the nat. ord. Simarubeæ, indigenous to Jamaica and other West Indian islands. Surinam Quassia, used in Europe, is the wood of *Quassia amara*. Both varieties, as met with in the shops, are in the form of chips or raspings, of a yellowish-white color, inodorous but of intensely bitter taste. The wood is also turned into cups, which are sold under the name of quassia-

or bitter-cups. It contains a bitter principle, *Quassin*, $C_{31}H_{42}O_9$, which is crystalline, soluble in hot alcohol and in chloroform, slowly in cold water, faster in alkaline or acidulated water. Dose of the powdered wood, gr. xx–xxx.

Preparations.

Extractum Quassiæ, *Extract of Quassia*,—aqueous. Dose, gr. j–iij.
Extractum Quassiæ Fluidum, *Fluid Extract of Quassia.*—Dose, ʒ ss–j.
Tinctura Quassiæ, *Tincture of Quassia*,—strength 10 per cent. Dose, ♏ v–ʒ j.
Infusum Quassiæ, *Infusion of Quassia* (Unofficial),—made with cold water ℥ x, Quassia chips ʒ j, macerated for ½ hour and strained. Or water poured into a quassia-cup and left standing will give a good infusion. Dose, ℥ j–iij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Quassia is a simple bitter, having no flavor, but is intensely bitter and less agreeable than either Gentian or Chiretta. It is fatal to flies and fish, and makes an excellent anthelmintic enema against the thread-worm. A concentrated preparation is poisonous to rabbits and dogs, and has produced very alarming narcotic symptoms in a four-year old child. As usually administered its action is that of a bitter stomachic tonic, as described under CALUMBA.

The preparations of Quassia contain no tannin and hence may be prescribed with salts of Iron. It is chiefly employed in atonic dyspepsia with pain after eating, and vomiting or regurgitation of food, also in atonic diarrhœa depending on indigestion or an irritable condition of the intestinal mucous membrane. It is useful in convalescence to promote the appetite and digestion, and with Sodium Bicarbonate in gastric vertigo. As an enema the strong infusion is an effective remedy for ascarides of the rectum. It has been used as a feeble antiperiodic, and in hysteria its repulsiveness is an aid to its medicinal action.

QUERCUS ALBA, White Oak,—is the bark of *Quercus alba*, the White-oak tree (nat. ord. Cupuliferæ), and occurs in nearly flat pieces deprived of the corky layer, of pale-brown color, tan-like odor, and strongly astringent taste; or as a coarse, fibrous powder, which does not tinge the saliva yellow. It contains a variety of Tannin named *Quercitannic Acid*, $C_{28}H_{24}O_{12}$, also *Pectin* and a bitter principle named *Quercin* but no Gallic Acid. There are no official preparations but a decoction (℥j ad Oj) may be used in doses of ℥ss–j.

Quercus Tinctoria, *Black Oak Bark*,—was formerly official. It contains a coloring principle *Quercitrin*, which stains the saliva yellow when the bark is chewed, also *Quercitannic Acid*, etc.
Quercus Lusitanica is the source of Galls (see under GALLA).

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Oak-bark is astringent and tonic, but is seldom used internally. Its action and uses are those of Tannic Acid. The decoction is much used in country practice as a cheap astringent application for injection in leucorrhœa, prolapsus ani, hemorrhoids, etc., and as a gargle in faucial inflammation and prolapsed uvula. It has also been used as an injection into dropsical cysts, and as a lotion for flabby ulcers and suppurating wounds. The powdered bark as a poultice has proved an excellent application in gangrene, and in finely pulverized state it is a useful ingredient of tooth-powders. A concentrated fluid extract is used in the Heaton-Warren operation for the radical cure of hernia, by injection into the tissues around the margin of the ring, with the object of exciting inflammation and occlusion of the opening.

QUILLAJA, Soap Bark,—is the inner bark of *Quillaja Saponaria*, a tree of the nat. ord. Rosaceæ, indigenous to Peru and Chili. It occurs in large, flat pieces, about ⅕ inch thick, of a brownish-white color externally, very acrid and sternutatory, but inodorous. It contains Calcium Sulphate crystals, starch, and the glucoside, *Saponin*, $C_{32}H_{54}O_{18}$, a white, amorphous, sternutatory powder, soluble in water and in dilute alcohol. The Infusion of Quillaja foams like soap-water. The only official preparation is the tincture.

Tinctura Quillaja, *Tincture of Quillaja*,—20 per cent. Dose, ♏ v–xxx.

QUILLAJA in powder is sternutatory and causes the water in which it is macerated to froth, making emulsions of oils, and being used instead of soap for washing purposes in various affections of the skin, and to stimulate the growth of the hair in alopecia. Its properties are due to the glucoside SAPONIN, which is found also in Senega and in a number of other plants, and is a violent irritant of the respiratory passages, a local anæsthetic, an antipyretic, a powerful paralyzant of the heart and respiration, and a poison to the voluntary muscles. It has not been made use of in practical medicine.

A decoction of the bark (5 to 200) has been employed in doses of ʒj–ij according to age, as a substitute for Senega in the treatment of diseases of the respiratory organs where a pleasant expectorant is indicated. Its expectorant properties are well established, and children take it readily. It does not provoke diarrhœa or vomiting, and has a sweetish, agreeable taste.

RESINA, Resin, (*Colophony*), $C_{44}H_{62}O_4$,—is the residue left after distilling off the volatile oil from Turpentine. It is a transparent, amber-colored substance, of sp. gr. 1.070 to 1.080, hard and brittle, with a glossy and shallow conchoidal fracture, and a faintly terebinthinate odor and taste, soluble in alcohol, ether, fixed or volatile oils, and in its own weight of oil of turpentine. Chemically it is considered as the *Anhydride of Abietic Acid*, $C_{44}H_{64}O_5$, into which acid it is converted by agitation with warm diluted alcohol. *Silvic*, *Pinic*, and *Palmaric Acids* are decomposition products, not constituents of the resin as formerly taught. Other official resins are RESINA COPAIBÆ, RESINA JALAPÆ, RESINA PODOPHYLLI and RESINA SCAMMONII, which are severally described under the titles of the plants forming their respective sources.

Preparations.

Ceratum Resinæ, *Resin Cerate* (*Basilicon Ointment*),—consists of Resin 35, Yellow Wax 15, and Lard 50 parts. It forms 65 per cent. of Turpentine Liniment.

Emplastrum Resinæ, *Resin Plaster* (*Adhesive Plaster*), consists of Resin 14, Lead

Plaster 80, Yellow Wax 6 parts. Is the common adhesive plaster of surgery, and an ingredient of the official Arnica, Belladonna and Capsicum Plasters.

Resin itself is an ingredient of Cantharides Cerate.

Resin gives consistence and adhesiveness to plasters and cerates, and generally acts as a mild local stimulant, but the writer has seen persons with so susceptible a skin that the ordinary adhesive plaster would produce on them a high degree of cutaneous irritation. It is never employed internally, but in chronic bronchial catarrh the fumes from boiling resin are inhaled with considerable advantage. Resin Cerate is one of the most commonly used applications to promote the healing of indolent ulcers, blistered surfaces, burns, scalds, chilblains, etc.

RESORCINUM, Resorcin (*Resorcinol*, *Metadioxybenzol*), $C_6H_4(OH)_2$—is a diatomic phenol, isomeric with *Pyrocatechin* and *Hydroquinone*, obtained by fusing certain resins with a caustic alkali, but best prepared by fusing Potassium Benzol-disulphonate with caustic Potassa, the salt being decomposed into Potassium Sulphite and Resorcin. It crystallizes in colorless, rhombic prisms or plates of neutral reaction, odorless, and of sweetish, acrid taste, very soluble in water, also in alcohol, ether, etc. Dose, gr. v–xv;—as an antipyretic ʒss–j, not repeated for several hours, or gr. v every 2 hours.

Physiological Action.

Resorcin is closely allied to Carbolic Acid, but possesses an advantage over the latter in that it is odorless, more soluble and almost non-irritant. It is equally powerful as an antiseptic and antiferment, arresting decomposition and destroying low organisms. Injected beneath the integument in solution it produces very little irritation, and never causes inflammation or abscess. Vesication results from its application to the mucous membrane. Internally a 30- to 60-grain dose causes a sense of heat, discomfort and oppression, followed by profuse perspiration and languor; if fever be present the temperature of the body is lowered several degrees, but rises again after a rigor in from 2 to 4 hours. Larger doses (150 grains) have produced deafness, dizziness, salivation, confused vision, vertigo, unconsciousness, general clonic convulsions, and tetanic rigidity of the muscles of the neck, with no decline of temperature in feverless subjects. Toxic doses (gr. xv to each 35 ozs. of weight) cause in animals trembling succeeded by epileptiform convulsions, which increase in severity and then decline; the respiration is quickened and enfeebled, the heart's action becomes rapid, weak, and irregular, and death results from paralysis of respiration, the drug paralyzing the motor tracts in the spinal cord, but not affecting the general sensibility. It is eliminated chiefly by the urine, which it colors a bluish-violet hue, and with great rapidity, about one hour serving for its excretion. The best test of its presence is the solution of the Perchloride of Iron, which produces with it a dark-violet, almost black color.

Antagonists.

Atropine and other cardiac and respiratory stimulants, cerebral excitants and agents which raise the arterial tension, are physiologically antagonistic.

THERAPEUTICS.

Resorcin is employed as an antipyretic and antiseptic, being preferred to carbolic acid for internal and subcutaneous use. A 3 per cent. solution gives good results in stomach complaints, as gastralgia, gastric catarrh, gastritis, gastric ulcer and cancer, fermentative indigestion, etc. In ulcer of the stomach its analgesic property is so marked that the stomach is enabled to tolerate food. It has given very great satisfaction in the treatment of diarrhœa of children; and is highly recommended by some observers in intermittent fevers and malarial diseases generally, while others have been much disappointed with its action therein. As an antipyretic it has been used in erysipelas, puerperal fever, septicæmia, and diphtheria, and in the latter disease it has been locally employed in crystals with decided benefit. As a local application to tuberculous and other ulcerations of the larynx, in diphtheria, tonsillitis, pharyngitis, chronic rhinitis, etc., strong, even supersaturated solutions are employed with increasing satisfaction, being highly efficient and quite painless. Applied to the peri-laryngeal mucous membrane, it has proved very useful in the treatment and prophylaxis of pertussis. A 2 per cent. solution has given great satisfaction as a local antiseptic application to wounds, parasitic skin diseases, cystitis, gonorrhœa, anthrax, and syphilitic sores of unhealthy character. As spray a similar solution is well applied to catarrhal or ulcerative affections of the respiratory passages. As a caustic it may be applied in undiluted form to chancres, papillomata, carbuncles, etc. A saturated ethereal solution is a good application where the caustic action of the drug is required.

A paste of equal parts of Resorcin and Zinc Oxide has been lately applied to the face to promote peeling of the skin in the treatment of acne rosacea. In three or four days the skin becomes like parchment, when the application must be stopped, in order to avoid the cracking of the skin, which begins at that stage. A dressing of gelatin, glycerin, zinc oxide and hot water is then applied, covered with cotton wool. In a few more days the dressing comes off, bringing the epidermis with it. Some few dangerous and unfavorable results have followed this method, but a number of very satisfactory cases are reported. Freckles and other superficial spots on the skin may be removed by the same treatment. (Unna.)

RHAMNUS PURSHIANA, Cascara Sagrada (*Chittem Bark, Sacred Bark*),—is the bark of *Rhamnus Purshiana*, the California Buckthorn, a small tree of the nat. ord. Rhamneæ, growing on the Pacific coast of the United States. It contains a *Volatile Oil*, a neutral crystalline substance, several *Resins*, with tannic, malic and oxalic acids. It has been found very serviceable in the treatment of chronic constipation, given in gradually diminished doses. It produces large, soft and painless evacuations, and the bowels are said to act naturally and regularly after its disuse.

Another species of the same order, *Rhamnus Frangula*, is official under the title FRANGULA, which see.

Preparations.

Extractum Rhamni Purshianæ Fluidum, *Fluid Extract of Cascara Sagrada*,—is made with diluted alcohol. Dose, ʒ ss–jss, two or three times a day.

Cascara Cordial is a trade preparation, intended as a remedy for constipation, dyspepsia and hemorrhoids, and as a pleasant excipient for nauseous and bitter drugs. A similar preparation may be made by combining the fluid extract with the official Elixir Aromaticum in the proportion of ʒ j to ℥ ij, of which teaspoonful doses or more may be administered.

RHEUM, Rhubarb,—is the root of *Rheum officinale*, a perennial plant of the nat. ord. Polygonaceæ, a native of Thibet. There are many other undetermined species of *Rheum*, several of which are cultivated in Europe and America, their leaf-stalks being used as a fruit. The commonly accepted medicinal Rhubarb is the Chinese variety, and is imported from Shanghai and Canton. It occurs in cylindrical or conical segments, sometimes flattened and bored with a hole, of a dirty-brown-yellow color externally, internally marbled with fine waving lines, of peculiar odor, gritty between the teeth, and of a bitter, astringent taste. It imparts its virtues to water and alcohol, and contains several substances of greater or less activity, the least important being *Phæoretin*, $C_{32}H_{32}O_{14}$, the rhubarb-resin,—*Erythroretin*, $C_{38}H_{36}O_{14}$, and *Chrysophan*, $H_{27}O_{30}C_{14}$, the latter of which is split by acids into sugar and Chrysophanic Acid. (See CHRYSAROBINUM.) It also contains *Rheo-tannic Acid*, $C_{52}H_{52}O_{28}$, *Rheumic Acid*, $C_{40}H_{32}O_{18}$, and probably a principle which is identical with Cathartic Acid (see SENNA), on which its purgative activity may depend. Dose of Rhubarb as a stomachic, gr. j–v; as a purgative, gr. x–xxx.

Preparations.

Extractum Rhei, *Extract of Rhubarb*.—Dose, gr. j–x.

Extractum Rhei Fluidum, *Fluid Extract of Rhubarb*.—Dose, ♏x–ʒj.

Pilulæ Rhei, *Pills of Rhubarb*,—are composed of Rhubarb 60, Soap 6, Water to 100; each pill containing about 3 grains of powdered Rhubarb. Dose, j–v pills.

Pilulæ Rhei Compositæ, *Compound Pills of Rhubarb*,—each pill contains of Rhubarb about 2 grains, Aloes 1½, Myrrh 1, Oil of Peppermint $\frac{1}{10}$ grain. Dose, ij–v pills. A safe and efficient laxative.

Tinctura Rhei, *Tincture of Rhubarb*,—has of Rhubarb 10, Cardamom 2, Glycerin 10, Alcohol and Water to 100. Dose, ʒj–iv.

Tinctura Rhei Aromatica, *Aromatic Tincture of Rhubarb*,—has of Rhubarb 20, Cinnamon 4, Cloves 4, Nutmeg 2, Glycerin 10, Alcohol, Water and Diluted Alcohol to 100. Dose, ʒj-iv.

Tinctura Rhei Dulcis, *Sweet Tincture of Rhubarb*,—has of Rhubarb 10, Glycyrrhiza 4, Anise 4, Cardamom 1, Glycerin 10, Alcohol, Water and Diluted Water to 100. Dose, ℥ss–ij.

Syrupus Rhei, *Syrup of Rhubarb*,—has of the Fluid Extract 10, Spirit of Cinnamon 0.4, Potassium Carbonate 1, Glycerin 5, Water 5, Syrup to 100. Dose, for an infant, ʒj; for older children ʒij–iv.

Syrupus Rhei Aromaticus, *Aromatic Syrup of Rhubarb*,—has of the Aromatic Tincture 15, Syrup 85. Dose, as the Syrup.

Pulvis Rhei Compositus, *Compound Powder of Rhubarb*,—has of Rhubarb 25, Magnesia 65, Ginger 10. Dose, a teaspoonful.

Mistura Rhei et Sodæ, *Mixture of Rhubarb and Soda*,—has of Sodium Bicarb. 3½, Fluid Extract of Rhubarb 1½, Fluid Extract of Ipecac ⅓, Glycerin 35, Spirit of Peppermint 3½, Water to 100. Dose, ʒij–℥ij.

Physiological Action and Therapeutics.

Rhubarb is classed among the tonic-astringent and resin-bearing purgatives, which increase the circulation of the glandular appendages of the intestinal canal, and stimulate the muscular layer of the bowel. In small doses (gr. j–v) its action is that of a stomachic and intestinal astringent, the influence of the bitter principle and the rheo-tannic acid probably predominating. In larger doses (gr. xxx-lx), its cathartic action prevails, producing in 6 to 8 hours copious yellow, pultaceous stools, with some griping and considerable hepatic stimulation. After the cathartic principle is expelled, the astringent quality of its tannin asserts itself and constipation is likely to result. The yellow color of the stools is partly due to the rhubarb pigment and partly to excess of bile, the drug having marked cholagogue properties, in all probability due to its resin, Phæoretin. Its pigment stains the milk, urine and sweat, the milk acquiring a bitter taste and purgative properties. The cathartic action of Rhubarb may be obtained from its application locally to ulcers, by being rubbed into the moist skin, or applied to the abdomen as a poultice.

Rhubarb is highly esteemed as a cathartic for children, from the mildness of its action, as, though occasionally producing quite severe griping, it never inflames the gastro-enteric mucous membrane. The tonic and astringent action following its catharsis makes it a valuable agent in diarrhœas due to the presence of irritating matter in the bowel, and to correct atonic indigestion accompanied by diarrhœa. For hemorrhoids with constipation its gentle action makes it peculiarly suitable, its astringent after-effect being entirely overcome by 2 to 4 drachm doses of olive oil nightly. It may be combined with a mercurial or with Sodium Bicarbonate, the latter being supposed to overcome its astringent action and to disguise its taste in some degree. In small doses the tincture is a very efficient stomachic tonic, improving appetite, increasing the flow of the gastric juice, assisting digestion, and promoting the action of the liver without producing any cathartic results. The preparations most in use for children are the Aromatic Syrup and the Mistura Rhei et Sodæ.

RHINACANTHUS (Unofficial),—the leaves and root of *Rhinacanthus communis*, a shrub of the nat. ord. Acanthaceæ, indigenous to India and China. The root contains a quinone-like body named *Rhinacanthin*, $C_{14}H_{18}O_4$, which forms with alkalies intensely red compounds which are decomposed by benzin. It is known in China as *Hong-Pang-Chong*, and is employed as a local remedy for ringworm and parasitic skin diseases, the leaves being bruised and mixed with lime-juice. Used internally a tincture of the root has some reputation as a feeble tonic and antiperiodic. The same preparation is applied locally in chronic eczema, tinea and psoriasis.

RHUS AROMATICA, Sweet Sumach (Unofficial),—is an indigenous shrub of the nat. ord. Terebinthaceæ, growing about 5 feet high, and having yellow flowers in spikes. The root-bark contains a volatile oil, several resins, fat, tannin, etc. A fluid extract is prepared from the bark of the root according to the general pharmacopœial rule, and may be given in doses of ♏ x–xxx, every 2 or 3 hours.

Rhus Aromatica has astringent properties, and seems to possess a selective action upon the urinary tract. Its action is not yet clearly made out. Therapeutically it has been used with advantage in cystitis, night-sweats, hematuria, menorrhagia, diabetes insipidus, diarrhœa and dysentery. As a remedy for incontinence of urine in children it has attracted considerable attention, having been extremely efficient in doses of ♏ xv of a good fluid extract four times daily, administered in glycerin and water, or any other suitable excipient. It is reported to be equally effective in hysterical enuresis of adults, but larger doses (♏ xx–xxx several times a day) are required. Diabetes insipidus is remarkably benefited by its continued use, and even in diabetes mellitus its employment has occasionally seemed to have been followed by curative results.

RHUS GLABRA, Smooth Sumach,—is the fruit of *Rhus glabra*, an indigenous shrub of the nat. ord. *Anacardieæ*, growing in rocky and barren soil to a height of 8 to 12 feet. The berries are about ⅛ inch in diameter, subglobular, densely hairy, of crimson color and acidulous taste, but inodorous. The leaves and bark have an astringent and bitter taste, and are also used medicinally. It contains tannin, coloring matter, potassium and calcium malates.

Extractum Rhoïs Glabræ Fluidum, *Fluid Extract of Rhus Glabra.*—Dose, ʒj–ij.

Sumach-berries form a useful acidulous and astringent drink or gargle in catarrhal pharyngitis, stomatitis, aphthæ, etc. An infusion (℥j to the pint) or the official fluid extract may be used as a wash and dressing for ulcers and wounds. Internally they are useful remedies for mild catarrhal affections of the stomach and bowels.

RHUS TOXICODENDRON, Poison Ivy,—is the fresh leaves of *Rhus radicans*, a plant of the nat. ord. *Anacardieæ*, indigenous to Canada and the greater part of the eastern United States. This climbing plant is not by itself a distinct species, but a variety of the erect shrub, *Rhus Toxicodendron*, the Poison Oak, formerly official as a source of the drug; both of which when wounded exuding a poisonous, acrid, milky juice which turns dark on exposure. The leaves are trifoliate, on petioles 4 or 5 inches long, the lateral leaflets sessile, entire and glabrous in R. radicans (or variously notched, toothed or lobed, downy beneath, in R. Tox.), inodorous, astringent and acrid. They may be confounded with the leaves of the hop-tree, *Ptelea trifoliata*, which are quite similar in appearance, but all its leaflets are sessile. The poisonous principle of the plant is *Toxicodendric Acid*, which is volatile, and also exists in *Rhus venenata* or Swamp sumach, *Rhus pumila*, and *Rhus diversiloba*, the former of which is probably the most poisonous of the four. The dose of the leaves is generally placed at gr. j–iv, but if old and dry they will generally prove to be inert. There are no official preparations.

Preparations.

Tinctura Rhoïs Toxicodendri, *Tincture of Rhus Toxicodendron* (Unofficial),—may be prepared according to the formula of the Pharmacopœia for Tincturæ Herbarum Recentium (Tinctures of Fresh Herbs), one part of the fresh leaves to two of Alcohol. Dose, ♏ $\frac{1}{10}$–♏ ij.

Extractum Rhoïs Toxicodendri, *Extract of Rhus Toxicodendron*,—has been used in France in large doses. It is probably inert.

PHYSIOLOGICAL ACTION.

The effects of Rhus Toxicodendron upon the skin are familiar to all who have suffered from contact with poison-oak or ivy. Some persons are so susceptible to the poison that the exhalations from the plant will produce on them its characteristic action. Others are apparently insusceptible to its influence, and can with impunity rub the juice into their skin, or even chew its leaves.

The action of the plant when locally applied is that of a cutaneous irritant, causing redness and swelling of the affected parts, with a vesicular eruption and intolerable itching, which may spread rapidly over the surface of the body and extend to the mucous membranes, producing conjunctivitis, redness and tumefaction of the mouth and throat, thirst, cough, nausea and vomiting, vertigo, stupefaction, etc. Colicky pains are experienced in the abdomen, are worse at night and are aggravated by food or drink. Diarrhœa may occur, with tenesmus and bloody stools, also diuresis, bloody urine, or even complete retention. Fever with delirium is frequently present, and may be typhoid in character, or intermittent with profuse perspiration. Pains of rheumatoid type are experienced throughout the body, but particularly in the joints and lumbar region, apparently intensified by rest and heat. The fibrous structures are evidently the seat of its selective action, and a sensation of numbness in the lower extremities is frequently experienced. Similar phenomena attend its internal administration, but fatal results have not followed in any case of poisoning recorded. The effects of the poison usually last from ten to fifteen days, and are then followed by desquamation of the epidermis.

Antidotes.

Cocaine Hydrochlorate, in 4 to 8 per cent. solution, is the best lotion to relieve the intolerable itching and burning. *Grindelia Robusta* makes one of the best local applications, and a solution of Mercuric Chloride is also a very serviceable lotion, and Lime-water with Linseed-oil, solution of Plumbum Acetate, solution of Chlorinated Soda, and Alum-curd are all very useful. Rest, low diet and laxatives are appropriate, and Opium or strong black coffee to relieve the irritability of the nervous system.

THERAPEUTICS.

Rhus Toxicodendron was used medicinally by Dufresnoy in France and by Alderson in England about the close of the eighteenth century. The attention of the former was attracted to it by the accidental poisoning of a student who was afflicted with chronic eczema, which disappeared on the subsidence of the Rhus symptoms. It is a favorite remedy with the so-called homœopathists, who ascribe to it extraordinary virtues in acute cutaneous affections of vesicular type, subacute and chronic rheumatism, vesicular erysipelas and typhoid fever. Among regular authorities it meets with very little favor as a remedial agent, but Dr. Phillips recommends it strongly in rheumatic affections of the fibrous tissues, erythema and erysipelas, eczema, herpes zoster and pemphigus. Dr. Piffard corroborates these opinions of its therapeutical value, and states that when rheumatic pain is "worse at night" prompt relief may be expected from Rhus. It was used by Dufresnoy in paralyses with a certain degree of success, and Eberle reports a case of paralysis in which it proved curative. It is admitted by many observers to be a useful remedy in paralytic affections of the lower extremities depending on a rheumatic diathesis, or resulting from exposure to cold and wet. As an external application it is efficacious in sprains and other affections of ligaments and tendons, also to extensive but superficial burns, stings of insects, and chilblains. For these affections a lotion of about ℥ss of the tincture to a pint of water is usually employed.

RICINI OLEUM, Castor Oil,—is a fixed oil expressed from the seeds of *Ricinus communis*, a tree of the nat. ord. Euphorbiaceæ, indigenous to India, but extensively cultivated in the United States, where it is an annual plant about 5 or 6 feet high, bearing ovate seeds, smooth and shiny, of gray color marbled with brownish spots and stripes, three contained in a pod. The oil is an almost colorless, transparent, viscid liquid, of faint odor, bland or slightly acrid taste, neutral reaction, sp. gr. 0.950 to 0.970, soluble in an equal weight of alcohol, and congealing at about —0.4° F. It consists mainly of *Ricinoleic Acid*, $C_{18}H_{34}O_3$, combined with glycerin, but palmitin, stearin, cholesterin, and probably a resin and an alkaloid also occur in small quantities. It is contained in Collodium Flexile (3 per cent.) and in Linimentum Sinapis Co. (15 per cent.). Dose, ʒj–℥j.

PHYSIOLOGICAL ACTION.

Used externally pure Castor Oil is perfectly bland. Internally administered it is non-irritant until it reaches the duodenum, where it is decomposed by the pancreatic juice, setting free the Ricinoleic Acid, which produces purgation by a mildly irritant action on the bowel, stimulating the intestinal glands and muscular coat, but not the liver. It is a simple purgative, acting in four to six hours, producing one or more liquid stools without pain or tenesmus, and followed by a sedative effect on the intestines. The leaves are believed to possess galactagogue properties when locally applied as a poultice to the breasts. Ricinoleic Acid enters the blood and the tissues, and is excreted with the various secretions of the body, imparting its purgative qualities to the milk of the nursing mother.

THERAPEUTICS.

Castor Oil is the best of simple purgatives, and is used where a free evacuation of the bowels is alone indicated, or when only a laxative action is desired, as in the constipation of typhoid fever, in pregnancy and post-partum conditions, diarrhœa from the presence of irritating matter in the bowels, and after operations on the abdominal or pelvic organs. It is often used as a purgative for children, also for the aged and infirm. Infants bear a larger relative dose than adults, probably from their ability to digest a larger quantity of what is taken. It is employed with great benefit as a laxative in irritation or inflammation of the bowels, in hemorrhoids, inflammatory or spasmodic affections of the genito-urinary organs, nephritis or cystitis, gonorrhœa, calculi, and stricture of the urethra and rectum. In cases of dysentery 10 to 20 drops of Laudanum may be added to each dose to counteract the pain, tenesmus and exhaustion resulting from the frequency of the passages. If much depression exists, as shown by lowered arterial tension and a dry, glazed tongue, 5 drops of Oil of Turpentine should also be added.

Castor Oil is much used in the puerperal state and greatly abused. There is considerable evidence in support of the charge that it induces hemorrhoids by congesting the rectal vessels. Its purgative action is milder in proportion to the purity of the sample employed. Externally, the pure oil is employed as a local sedative and protective, as in neutralizing the effects of lime upon the conjunctiva.

The leaves of the castor-oil plant are used to promote the secretion of milk. They may be applied to the breast in poultice, and a decoction or fluid extract given internally at the same time.

Administration.

The nauseous smell is best concealed by the Essential Oil of Bitter Almonds. Emulsions are not a success. Capsules containing the requisite dose are easily obtained. In the absence of these the best way to administer a dose of oil is to smear the sides of a clean wineglass with very thick cream, then to pour in the oil, covering it with a little more cream. A teaspoonful of cream being then taken into the patient's mouth, he is directed to bolt the dose at one gulp. Some prefer it floated on orange-juice, strong coffee, gruel or wine. One of the best vehicles for it is foaming beer. Glycerin increases its purgative power, when given conjointly.

ROSA, Rose,—is represented in pharmacy by the petals of two species and the volatile oil from a third.

Rosa Centifolia, *Pale Rose,*—is the petals of *Rosa centifolia,* the Cabbage Rose, a well-known and cultivated shrub of the nat. ord. Rosaceæ. They are of pink color, fragrant odor, a sweetish taste, changing to slightly bitter and faintly astringent. The odor is due to a minute quantity of a volatile oil, besides which the petals contain tannin, fat, resin, sugar, etc. If it is desired to keep Pale Rose fresh for any length of time, it should be mixed with one-half its weight of Sodium Chloride and pressed into a jar, which should be kept in a cool place, well closed.

Rosa Damascena, *Damask Rose,*—is the source of the official Oil of Rose, which is distilled from the fresh flowers. This variety of the nat. ord. Rosaceæ is largely cultivated in Roumelia, on the southern slope of the Balkan mountains, from which section comes nearly all of the oil supplied to commerce.

Rosa Gallica, *Red Rose,*—is the petals of *Rosa gallica,* collected before expanding. They occur usually in small cones of deep purple color, having a roseate odor, and a bitterish, slightly acidulous and distinctly astringent taste. They contain an aromatic oil, tannic and gallic acids, quercitrin, coloring matter, salts, etc.

Preparations of Rosa Damascena.

Oleum Rosæ, *Oil of Rose* (*Attar of Rose*),—is a volatile oil distilled from the fresh flowers of *Rosa damascena.* It is a pale-yellowish, transparent liquid, having a strong odor of rose, a sweetish taste and a slightly acid reaction, but slightly soluble in alcohol, of sp. gr. about 0.870. It consists of an aromatic oxygenated elæopten and an odorless solid stearopten (rose-camphor). Being very expensive it is much adulterated with other volatile oils. It is used chiefly for perfuming cosmetic preparations, ointments and lotions, and as the basis of the following:

Aqua Rosæ Fortior, *Stronger Rose Water* (*Triple Rose Water*),—is water saturated with the volatile oil of Rose petals, obtained as a by-product in the distillation of Oil of Rose. An agreeable excipient and flavoring agent. Dose, ʒss–j.

Aqua Rosæ, *Rose Water,*—consists of equal volumes of the preceding and distilled water, mixed together immediately before use. It is an ingredient of Mistura Ferri Composita. Dose, ʒj–ij.

Unguentum Aquæ Rosæ, *Ointment of Rose Water* (*Cold Cream*),—has of Stronger Rose Water 19, Expressed Oil of Almond 60, Spermaceti 12½, White Wax 12, and Sodium Borate ½. For local use.

Preparations of Rosa Gallica.

Extractum Rosæ Fluidum, *Fluid Extract of Rose,*—prepared with glycerin and diluted alcohol. Dose, ♏v–ʒj.

Confectio Rosæ, *Confection of Rose,*—has of Red Rose 8, Sugar 64, Honey 12, Stronger Rose Water 16, beaten together into a mass, which is used as a basis for pills. Dose, gr. x–ʒj.

Mel Rosæ, *Honey of Rose,*—has of the Fluid Extract 12, and Clarified Honey to 100. Dose, ʒj–ij.

Syrupus Rosæ, *Syrup of Rose,*—has of the Fluid Extract 12½, with Syrup 87½. Dose, ℥j–ij, for flavoring.

Red Rose is an ingredient of Pil. Aloes et Masticbes.

Pale Rose petals are only used for odoriferous purposes. Rose Water has no strictly medicinal properties, but is an agreeable excipient for lotions, collyria and urethral injections. The ointment, commonly termed "cold cream," is a pleasant emollient and protective, generally used for chapped hands and other superficial skin affections. Red Rose is classed among the astringents, as it contains an appreciable amount of tannic and gallic acids. A Compound Infusion, containing sugar and dilute sulphuric acid, was formerly official, and is used as an agreeable gargle for the throat and mouth in inflamed and ulcerated conditions. The chief uses of the rose preparations, however, are as vehicles for other agents, or to impart flavor and odor to extemporaneous prescriptions.

ROSMARINUS, Rosemary,—the source of the official Oil of Rosemary, is the leaves of *Rosmarinus officinalis,* a shrub of the nat. ord. Labiatæ, cultivated in gardens for the sake of its large, pale-blue flowers. They are pungently aromatic and somewhat camphoraceous, and contain the volatile oil, a little tannin, some resin and a bitter principle.

Oleum Rosmarini, *Oil of Rosemary,*—is the volatile oil distilled from Rosemary, a colorless or yellowish liquid, of sp. gr. about 0.900, having the characteristic odor of the plant, a camphoraceous taste, and is readily soluble in alcohol. It consists of a terpene, isomeric with Turpentine, $C_{10}H_{16}$, and a body allied to camphor. It is an ingredient of Linim. Saponis, Spiritus Odoratus and Tinct. Lavandulæ Comp. Dose, ♏j–v.

Rosemary was formerly considered emmenagogue, galactagogue and diuretic, but is now never employed in substance. Its Oil is somewhat stimulant and carminative, and in excessive quantity has caused death. It is chiefly employed as an external stimulant in liniments and lotions, especially to the scalp in alopecia, where it is supposed to increase the blood-supply to the hair bulbs, and is usually combined with cantharides. Inhaled it reduces the body temperature and gives the urine a violaceous odor.

RUBIDIUM, Rubidium, Rb, (Unofficial),—is one of the rarer metals, belonging to the group of alkaline metals of which potassium and sodium are typical. It has a molecular weight of 85, that of Potassium being 39, and that of Sodium 23. Its salts are supposed to act more promptly and efficiently than those of the latter, upon the theory that the physiological action of salts is as much a periodic function of the atomic weights of their elements as are their physical and chemical characters. The principal salt of Rubidium is—

Rubidii Iodidum, *Rubidium Iodide,* Rb I, (Unofficial),—occurs in white, non-efflorescent crystals, odorless, of milder taste and greater solubility in water than Potassium Iodide. Dose, gr. v–xxx or more.

Rubidium Iodide has generally the same physiological and therapeutical action as Potassium Iodide, but has a far less toxic action upon the cardiac muscle. It is well borne by the stomach, does not disturb the appetite nor give rise to digestive derangements, and does not affect the circulation. It rarely produces iodism, and even when the iododerma and catarrh were present as a result of the administration of potassium iodide, the change to the rubidium salt has resulted in decrease of these symptoms. It has been employed in lieu of the potassium salt, with greater efficiency and less disturbance, in most of the affections for which the iodides are indicated. In eye affections requiring an absorptive treatment it is employed internally and externally as a 5 per cent. vaselin ointment or in the form of 5 per cent. drops, (ʒj in ℥ijss).

RUBUS, Blackberry-Bark,—is the bark of the root of *Rubus villosus*, the common Blackberry, *Rubus canadensis*, the Dewberry, and *Rubus trivialis*, the Bush Blackberry of the Southern States, all of the nat. ord. Rosaceæ. It occurs in thin, tough, flexible bands, blackish-gray externally, pale-brown internally, inodorous, strongly astringent and of somewhat bitter taste. It contains over 10 per cent. of Tannin. Dose, gr. xv–xxx.

Extractum Rubi Fluidum, *Fluid Extract of Rubus.*—Dose, ♏x–ʒj.

Syrupus Rubi, *Syrup of Rubus,*—has of the Fluid Extract 25, Syrup 75. Dose, ʒj–℥j.

Syrupus Rubi Aromaticus, *Aromatic Syrup of Rubus* (Unofficial),—contains Rubus, Cinnamon, Cloves and Mace. Each fl ℥ has 30 grains of the drug. Dose, ʒj–℥j.

Blackberry-bark derives its virtues from its tannin. It is strongly astringent, and may be used in decoction, wine or the above-named preparations. It is highly esteemed in summer and infantile diarrhœas.

RUBUS IDÆUS, Raspberry,—is the fruit of *Rubus idæus*, the Raspberry bush, nat. ord. Rosaceæ. It contains sugar, malic and citric acids, proteids, pectin, etc., also a *Volatile Oil* consisting of compound ethers, to which the odor is due. Its sole use in medicine is to prepare a pleasantly flavored syrup. The closely allied, light-red fruit of *Rubus strigosus*, the wild Red Raspberry, and the purplish-black fruit of *Rubus occidentalis*, the Thimble-berry, may be employed in place of the above.

Syrupus Rubi Idæi, *Raspberry Syrup,*—has of Raspberries and Sugar any convenient quantity, boiled (but not in tinned vessels) and strained. Dose, ad libitum. It has a bright-red color, a fruity, agreeable odor, a pleasant, acidulous taste and an acid reaction. It has no special medicinal virtues, but forms an agreeable flavoring for mixtures, and mixed with water a pleasant drink in febrile conditions.

The leaves of the wild Red Raspberry (*Rubus strigosus*) are considerably astringent, and in infusion, ℥j to the pint, are a popular domestic remedy for diarrhœas.

RUMEX, Yellow Dock,—is the root of *Rumex crispus*, and of some other species of Rumex, plants of the nat. ord. Polygonaceæ, growing as common weeds along roadsides. Several species of Rumex have sour leaves, and are popularly called *Sorrel* to distinguish them from the others which are called *Dock*. The official root is 8 to 12 inches long, ½ inch thick, somewhat fusiform and fleshy, annulate above, deeply wrinkled below, externally rusty-brown, internally whitish, with fine medullary rays; fracture short, odor slight, taste bitter and astringent. It contains tannin, mucilage, starch, calcium oxalate, and two principles named *Rumicin* and *Lapathin*, which are shown to be identical with *Chrysophanic Acid.* Its constituents are nearly identical with those of Rhubarb. Dose, gr. xv–ʒj.

Preparations.

Extractum Rumicis Fluidum, *Fluid Extract of Rumex.*—Dose, ♏xv-ʒj.

Decoctum Rumicis, *Decoction of Rumex* (Unofficial),—℥ij of the fresh root, or ℥j of the dry root to Oj of water. Dose, ℥j-ij.

Rumex is astringent, tonic and laxative. It has also been considered alterative and anti-scorbutic. It has been employed chiefly in chronic cutaneous disorders, glandular swellings, and other symptoms of the strumous diathesis. It seems to possess a selective action on the mucous membrane of the larynx, and in many cases of laryngeal irritation with catarrhal symptoms, dry, violent cough, and a sense of soreness behind the sternum, it will give prompt relief. The Rumex Acetosa has a popular reputation as a local application for cancer.

RUTA, Rue (Unofficial)—is the source of Oil of Rue, which is distilled from the leaves of *Ruta graveolens,* an herbaceous perennial of the nat. ord. Rutaceæ, growing wild throughout Southern Europe, and frequently cultivated in gardens for its yellowish flowers. The fresh leaves only should be used, and as drying impairs their qualities the oil is generally employed.

Oleum Rutæ, *Oil of Rue* (Unofficial),—the volatile oil distilled from *Ruta graveolens*; a colorless, or greenish-yellow liquid, of disagreeable but aromatic odor, pungent acrid taste and neutral reaction, sp. gr. about 0.880, soluble in an equal weight of alcohol. Dose, ♏j–v, in mucilage.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Rue is an active irritant, locally a rubefacient, the oil producing heat, inflammation and vesication. In the ordinary dose it causes a sensation of heat in the stomach and skin, increases the action of the heart, and stimulates the bronchial, cutaneous and renal secretions, the odor of the oil being distinctly perceptible in the breath, sweat and urine. After toxic doses of the oil violent gastro-enteritis results, with extreme prostration, convulsions, strangury and suppression of the urine. Abortion may be produced by large doses, but with great danger to life. Rue is an efficient emmenagogue, and in men aphrodisiac; it is also considered antispasmodic and carminative.

The Oil of Rue is employed internally in amenorrhœa, menorrhagia and metrorrhagia, hysteria, convulsions and flatulence. As an emmenagogue it is very efficient when the condition is one of functional inactivity of the uterus and ovaries. In small doses it has been well used in metrorrhagia from debility and after abortion. A decoction of the fresh leaves is often employed by injection against ascarides, and internally to remove lumbricoid worms. Externally the same preparation has been applied to the chest in chronic bronchitis, also in various scaly eruptions and glandular enlargements. Used as an abortifacient it has frequently caused death, preceded by symptoms of narcotic and irritant poisoning. Even in poisonous doses its abortifacient action is very uncertain, so that only the most ignorant criminals employ it with such purpose. It was formerly official, but has been dismissed from the last edition of the pharmacopœia.

SABINA, Savine,—the tops of *Juniperus Sabina*, a small evergreen shrub of the nat. ord. Coniferæ, growing in Northern Europe, Asia and America. It closely resembles Red Cedar (*Juniperus virginiana*), but is distinguished from the latter by its smaller size and by its larger fruit. It occurs in short, thin branchlets, having oveo-lanceolate leaves in four rows; of peculiar, terebinthinate odor, and nauseous, bitter, resinous taste. It contains a Volatile Oil (which is official), also tannin, resin, extractive matters, chlorophyll, etc. Dose, gr. v–x.

Preparations.

Extractum Sabinæ Fluidum, *Fluid Extract of Savine.*—Dose, ♏v–xv.

Ceratum Sabinæ, *Savine Cerate* (Unofficial),—may be prepared by incorporating the Fluid Extract 25 in Resin Cerate 90, melted and cooled. Formerly official, but dismissed from the last edition of the pharmacopœia.

Oleum Sabinæ, *Oil of Savine*,—a volatile oil distilled from Savine existing in the fresh tops in the proportion of 2½ per cent., and in the berries 10 per cent. It is a colorless, or yellowish liquid, isomeric with oil of turpentine, $C_{10}H_{16}$, having a peculiar, terebinthinate odor, a pungent camphoraceous taste, and neutral reaction, of sp. gr. about 0.910 to 0.940 and soluble in an equal volume of alcohol. Dose, ♏j–v.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Externally the action of Savine resembles that of Turpentine, except that it is more irritant, the oil producing vesication if applied sufficiently long. Internally a full medicinal dose causes heat sensations, nauseous eructations, flatulence, increased cardiac action, stimulation of the cutaneous, bronchial and renal secretions, irritation of the kidneys, hyperæmia of the ovaries and uterus and increased menstrual activity. In large doses it produces hematuria, dysuria, and intense gastro-enteritis, with violent vomiting and purging. It may originate uterine contractions in the pregnant female, but its abortifacient effect can only be produced by a quantity sufficient to endanger life. The oil diffuses into the blood and is excreted by the various excretory channels.

As an emmenagogue Savine is highly esteemed by many authorities, Dr. Phillips considering it "one of the most certain and powerful" agents of this class, "with the additional advantage that it can be given with perfect freedom from risk of doing harm." So irritant an agent, however, requires the exercise of great caution in its use. It has been found extremely efficient in dysmenorrhœa when not due to mechanical causes; also, in menorrhagia and hemorrhage after abortion. In chronic gout and the joint affections of chronic rheumatism, it was formerly much employed. Externally the Cerate is used to prolong the discharge from blisters, setons or issues, and to stimulate the healing of indolent ulcers. For these purposes it is considered safer than Cantharides, as its prolonged employment does not bring on strangury or vesical irritation. As a caustic it is efficient for the destruction of warts and other excrescences, and the moistened powder is used as a paste on venereal condylomata, in combination with burnt alum or cupric subacetate. The Oil is the most efficient preparation for internal administration.

SACCHARINUM, Saccharin (Unofficial),—is a recently discovered derivative of a coal-tar product, *Toluene*, from which it is prepared by a complicated process. It has the chemical title *Benzoyl-sulphonic-imide*, and the formula $C_6H_4(CO)(SO_2)NH$. It occurs as a white, amorphous powder, with a very sweet taste, and a faint flavor of bitter almonds, is soluble in alcohol and in ether [Sugar is *not* soluble in ether], sparingly in cold water, more so in hot water.

Saccharin is 220 times sweeter than sugar to the taste, and is also an efficient antiseptic. It is not a food, like sugar; and has no injurious action on man. It is useful as a substitute for sugar in cases of diabetes, but it has no curative action upon that disease.

SACCHARUM, Sugar (*Cane-sugar*), $C_{12}H_{22}O_{11}$,—is the refined sugar obtained from *Saccharum officinarum*, the Sugar-cane, a perennial plant of the nat. ord. Gramineæ, indigenous to India and adjoining countries, but cultivated in tropical regions throughout the world. It is also obtained from various species or varieties of *Sorghum* (nat. ord. Gramineæ), and from one or more varieties of *Beta vulgaris*, the Sugar-beet (nat. ord. Chenopodiaceæ). It is present in several other grasses, as *Zea Mays*, Maize; in the juice of various trees (maple, birch, palm, etc.); and in many roots.

Cane-sugar occurs in white, dry, hard crystalline granules, permanent in the air, odorless, of purely sweet taste and neutral reaction, soluble in 0.5 of water and in 175 of alcohol at 59° F., in 0.2 of boiling water and in 28 of boiling alcohol, insoluble in ether. The aqueous solution, saturated at 59° F., has the sp. gr. 1.345, and is miscible with alcohol in all proportions. Its freedom from Grape-sugar (glucose) and from more than a slight quantity of Inverted Sugar (glucose *plus* levulose) is ascertained by dissolving 1 gram in 10 Cc. of boiling water, then mixing with the solution 4 or 5 drops of test-solution of Silver Nitrate and about 2 Cc. of Aqua Ammonia, and quickly heating to boiling, when not more than a slight coloration, but no black precipitate should appear after standing at rest for 5 minutes.

Other Sugars.

Saccharum Lactis, *Sugar of Milk*, *Lactose*, $C_{12}H_{22}O_{11} + H_2O$,—see next page.

Glucose, *Dextrose*, *Grape-sugar*, *Starch-sugar*, $C_6H_{12}O_6$, or hydrated $C_6H_{12}O_6 + H_2O$ (Unofficial), also known as liver-sugar, diabetic sugar,—forms yellowish nodules or crystals, very soluble in water and in alcohol, has a sweet taste, less marked than that of cane-sugar, may be obtained artificially from cane-sugar or from starch, by boiling with a dilute mineral acid, or by the action of Diastase, a vegetable ferment formed during the germination of grain. Boiling solutions of the alkalies convert it into a brown substance (melassic acid).

Levulose, *Fruit-sugar*, $C_6H_{12}O_6$ (Unofficial),—frequently found with grape-sugar in fruits, also in honey. See also Diabetin, below.

Inosit, *Phaseo mannit*, $C_6H_{12}O_6 + 2H_2O$ (Unofficial),—exists in the juice of some meats, in asparagus, etc. Is very sweet, but does not undergo alcoholic fermentation.

Allied Substances.

Theriaca, *Treacle, Sugar-house Molasses* (Unofficial),—is the uncrystallizable residue of the process for refining sugar,—a thick, brown, fermentable syrup, very sweet and of sp. gr. about 1.40. It is official in the B. P., and is used in making up some of the official pills of that pharmacopœia.

Amylum, *Starch*, $C_6H_{10}O_5$,—when boiled with dilute mineral acids or when subjected to the action of diastase, ptyalin or pancreatin, starch is converted into glucose. (See *ante*, article AMYLUM.)

Cellulose, $C_6H_{10}O_5$ (Unofficial),—forms the basis of all vegetable fibre, and is isomeric with starch. It exists almost pure in cotton and in Swedish filter paper. *Pyroxylin*, Gun-cotton, is dinitro-cellulose.

Glycogen (Unofficial),—closely resembles starch in its properties, being converted into glucose by the same agents which so act on starch. It exists in the liver of all animals.

Dextrin (Unofficial),—is produced by the action of dilute acids on starch, and is an intermediate product in the conversion of starch into glucose. It is a transparent, brittle solid, looking like gum, soluble in water and dilute alcohol, is not fermentable, nor is it colored by Iodine.

Preparations.

Sugar is an ingredient of Pil. Ferri Carbonatis, Pil. Ferri Iodidi, Ferri Carbonas Saccharatus, Mistura Ferri Composita, Pulvis Cretæ Compositus, Pulvis Glycyrrhizæ Compositus, and the Troches, Syrups, Compound Syrups, etc.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Sugar is employed in pharmacy and therapeutics chiefly as a vehicle, a corrigent, a preservative and an antiseptic. Syrups protect the active ingredients against putrefaction, but not always against fermentation. They also protect certain ferruginous preparations against oxidation. As an ingredient in troches, powders and extemporaneous mixtures sugar is used to cover the taste or to make insoluble substances more easily miscible with water. It increases the solubility of Lime in water. As a food it possesses well-known properties, being a nutrient to adipose tissue and a respiratory fuel, and is decidedly diuretic in its action upon healthy kidneys. Sugar and sugar-forming food constitute more than one-half of the nourishment needed by a healthy person, and when withheld, as in diabetes, the patient is actually starved, and undergoes progressive and rapid emaciation. LEVULOSE is found to be more easily consumed in the system than is cane-sugar, and in the treatment of diabetic patients may be used with benefit for some time. Heretofore its cost has been very great, but it is now being manufactured in large quantities, and sold at a reasonable price, under the trade-name "*Diabetin.*"

SACCHARUM LACTIS, **Sugar of Milk** (*Lactose*),—$C_{12}H_{22}O_{11} + H_2O$,—is one of the constituents of the milk of mammals, and is officially described as a peculiar, crystalline sugar obtained from the whey of cow's milk by evaporation and purified by re-crystallization. Occurs in white, hard, crystalline masses, yielding a gritty, white powder, odorless, permanent in the air, of faintly sweet taste and neutral reaction, soluble in about 6 of water at 59° F. and in 1 of boiling water, insoluble in alcohol, ether or chloroform. On adding to a solution of sugar of milk in an equal weight of boiling water some solution of soda, the liquid turns brownish, and on further addition of test-solution of Cupric Sulphate a brick-red precipitate separates.

Sugar of Milk is the least soluble of all sugars in water and is insoluble in alcohol. It enters into alcoholic fermentation with difficulty. In the presence of decomposing albuminous matter and under certain other influences, it undergoes the *lactic fermentation*, which results in the formation of Lactic Acid, Carbon Dioxide and Alcohol. It readily reacts with the reduction tests.

Lactose has been shown to act as a powerful diuretic, especially in cardiac dropsy, in which Dr. Sée considers it "the best and most certain diuretic we possess, the excretion of urine caused by it being greater than that due to any other drug." He found that it acts similarly to, though more powerfully than, Caffeine, while possessing none of the disadvantages of the latter. Its diuretic action is but very little in cases where extensive renal disease exists, and it has no power over dyspnœa.

Sugar of Milk is used in the Triturations, also in Dover's Powder, Deodorized Opium, etc., as a diluent. Being much harder than cane-sugar it is considered a valuable excipient for powders requiring fine trituration and the minute subdivision of their medicinal constituent. It is less sweet than cane-sugar, and being less apt to ferment in the stomach and bowels is better than the latter for use with infants' food.

SALICINUM, **Salicin**, $C_{13}H_{18}O_7$,—is a neutral principle obtained from several species of *Salix*, Willow, and *Populus*, Poplar, trees of the nat. ord. Salicaceæ. It is found also in *Gaultheria procumbens*, Wintergreen (nat. ord. Ericaceæ), and in *Betula lenta*, the Sweet Birch (nat. ord. Betulaceæ), the volatile oils of which, distilled from the leaves of the former and from the bark of the latter, consist almost entirely of methyl salicylate. (See below.) Salicin occurs in colorless or white and silky, shining crystalline needles, or a crystalline powder, odorless, of very bitter taste, permanent in the air, of neutral reaction; soluble in 28 of water and in 30 of alcohol, in 0.7 of boiling water and in 2 of boiling alcohol; almost insoluble in ether or chloroform. Dose, gr. x–ʒj.

Acidum Salicylicum, *Salicylic Acid*, $HC_7H_5O_3$,—is an organic acid, existing naturally in combination in various plants, but most largely prepared synthetically from carbolic acid. It occurs in light, fine, white, prismatic needles, or a crystalline powder, odorless, of sweetish, afterwards acrid taste and acid reaction, permanent in the air; soluble in about 450 of water and in 2.4 of alcohol, in 14 of boiling water, 2 of absolute alcohol, 2 of ether, 80 of chloroform, very soluble in boiling alcohol. 100 parts may be dissolved in 100 of water by the aid of 8 of Borax. Dose, gr. v–ʒj.

Salicylic Acid is a derivative of Salicin, probably by double oxidation; but may also be considered as a substitution-derivative of Benzene, formed by replacing 2 atoms of its hydrogen, the one by hydroxyl, and the other by carboxyl. (See page 195, *ante*.) It is obtained, therefore, either synthetically by combining the elements of Carbolic Acid with those of Carbonic Acid, and subsequent purification,—or from natural Salicylates as the Oils of Wintergreen and Sweet-Birch,—or from Salicin, by heating with caustic potash and treating the mass with hydrochloric acid. The acid prepared from natural sources is purer and more efficient than that prepared artificially, and will often be tolerated by a patient who cannot bear the latter.

Official Preparations.

Salol, *Salol* (*Phenyl Salicylate*), $C_6H_5C_7H_5O_3$,—is the salicylic ether of phenol, now obtained from salicylic acid by heating up from 320° to 464° F., excluding the air; by which process the acid is converted into Salol, Water and CO_2. It is a white, crystalline powder, odorless and almost tasteless, nearly insoluble in water, soluble in 10 of alcohol, and very soluble in ether, chloroform and oils. On being warmed with an alkali it splits up into Salicylic Acid 60, and Carbolic Acid 40. Dose, gr. v–xv, frequently repeated, in compressed tablets or in cachets, or suspended by mucilage of acacia or of tragacanth.

Lithii **Salicylas**, *Lithium Salicylate*, $LiC_7H_5O_3$,—a white, or grayish-white powder, odorless, sweetish, deliquescent, very soluble in water and in alcohol. Dose, gr. v–ʒj.

Sodii Salicylas, *Sodium Salicylate*, $NaC_7H_5O_3$,—a white, amorphous powder, odorless, sweetish, permanent; soluble in ¾ of water and in 6 of alcohol, also in glycerin. Dose, gr. v–ʒj.

Physostigminæ Salicylas, *Physostigmine* (*or Eserine*) *Salicylate*,—is described under PHYSOSTIGMA. Dose, gr. $\frac{1}{100}$–$\frac{1}{60}$.

Methyl Salicylas, *Methyl Salicylate*, *Artificial* (*Synthetic*) *Oil of Wintergreen*, $CH_3{\cdot}C_7H_5O_3$,—is a colorless liquid, having the characteristic odor and taste of Oil of Gaultheria, with the essential constituent of which it is identical. It is wholly identical with Oleum Betulæ Volatile, and is soluble in all proportions in alcohol, carbon disulphide, or glacial acetic acid. Dose, ♏ v–xv, suspended in water or in sugared water.

Oleum Betulæ Volatile, *Volatile Oil of Betula* (*Oil of Sweet Birch*),—is a volatile oil distilled from the bark of *Betula lenta*, the Sweet Birch. It is identical with Methyl Salicylate (see above), and nearly identical with Oil of Gaultheria. Russia leather derives its odor from this oil. Dose, ♏ v–xv.

Oleum Gaultheriæ, *Oil of Gaultheria* (*Oil of Wintergreen*),—consists almost entirely of Methyl Salicylate, and is nearly identical with the preceding. It is described under the title GAULTHERIA.

Unofficial Preparations.

Salophen, *Para-amidophenol Salicylate*,—contains the equivalent of nearly 51 per cent. of Salicylic Acid, and occurs as minute, white, crystalline scales, odorless and tasteless, insoluble in water, soluble in alcohol; decomposed by alkalies into Salicylic Acid and Acetyl-para-amidophenol; also by the organism as demonstrated in the urine. Dose, gr. v–xv, up to ʒj or jss in the 24 hours.

Salipyrin, *Antipyrin Salicylate*, $C_{18}H_{18}N_2O_4$,—is produced by the combination of Salicylic Acid 57.7, and Antipyrin 42.3 parts. It is a white, crystalline, odorless powder, very soluble in alcohol, insoluble in water. Its claims to preference are based upon its comparative harmlessness (ʒ ijss having been taken within 3 or 4 hours without the slightest ill effect); also its freedom from unpleasant after-results. Dose, gr. x–xxx every hour or 2 hours until ʒ ij have been taken. It is best administered in wafers as a powder, or in mixture, rubbed up with glycerin and flavored with raspberry syrup. It is not obtainable in this country, owing to a conflict between the patentees thereof and those of antipyrin. It is a very loose combination at best, and there is no reason whatever why as good results would not be obtained from the administration of its constituents in conjunction, in proper doses for each individual case. (Squibb.)

PHYSIOLOGICAL ACTION.

WILLOW-BARK is highly astringent and antiperiodic and feebly tonic, but is never employed medicinally, owing to its bulk. SALICIN is a bitter tonic, also antiferment, antiseptic, and highly destructive to low organisms. It has slight antiperiodic power and is feebly antipyretic. It prevents the reaction between Amygdalin and Emulsin (see page 74), and also that of Ptyalin, etc., on Starch (see page 114). It seems to be devoid of toxic power on man, and is mainly excreted as Salicylic, Salicyluric and Salicylous acids, being first changed in the bowel into Saligenin and Glucose. Salicin is well borne by the stomach.

Salicylic Acid has properties similar to the above, but is much mo energetic in its action, being a powerful antipyretic and antiseptic. It also anhydrotic, checking local perspiration when locally applied. Inhal it causes irritation of the respiratory passages, producing sneezing ar cough. In small doses it stimulates the stomach, heart and respiratio but moderate quantities derange the stomach, causing nausea and vomi ing, while large doses depress the heart's action and the respiration aft a primary excitation of both, lower the arterial tension, relax the vessel produce free perspiration, and reduce the temperature in fever. It caus vertigo, dilated pupils, tinnitus aurium, a sensation of tension in tl frontal cerebrum, delirium, and may produce bed-sores from depressic of the circulation, but does not affect the peripheral nerves as to eith motion or sensation. In the blood it is first changed to Sodium Salicylat but a portion is again set free and uniting with glycocoll forms Salicylur Acid ($HC_9H_8NO_4$), coloring the urine green. It is slowly excreted wi the secretions generally, especially in the urine, sweat, saliva and bil It stimulates the kidneys, at the same time disinfecting them and increa ing the acidity of the urine, but may so irritate the kidneys as to produ albuminuria and hematuria.

Salicylic Acid is destructive to the torula, prevents alcoholic ferment tion, also that caused by the organic ferments (pepsin, ptyalin, etc.). I solutions containing bacteria, it will prevent their development, if in tl proportion of 1 per cent.; and in that of 1 in 60 it will destroy them whe in full activity.

Sodium Salicylate is remarkably antipyretic in doses of gr. xv, give 4 or 5 times in 24 hours. It is a powerful diaphoretic, and an efficie cholagogue, and it is supposed to possess the curious property of increa ing the fluidity of the bile, at the same time that it promotes its secr tion,—other cholagogues increasing the proportion of solids therei (Brunton.) It has no antiseptic power unless in association with a stron mineral acid, which will liberate the salicylic acid.

Salol is antiseptic, antipyretic, and germicide, in a higher degree tha either of its constituents. As an antipyretic in fever it stands next aft Antipyrin, and it acts with such force as to frequently depress the ten perature a degree or two below normal. It is sedative to the cerebr spinal system, and somewhat analgesic. It causes profuse sweating, an in a few cases considerable depression has accompanied its antipyret employment; but it is not toxic, and may be used freely in its prop dosage, which ranges from 5 to 60 grains, up to 2 or 3 drachms in the hours.

THERAPEUTICS.

Salicin and its derivatives are chiefly used in acute rheumatism, t lower temperature, relieve pain, and reduce articular swelling. The are most suitable to strong, vigorous patients, and if not promptly efficient they should be abandoned. The acid is much used as an antipyretic in fevers, especially those of septicæmic character. It is a useful local application in gangrenous wounds, eczema of the hands or feet, cancer, burns, and in fetid perspirations, in the last affection being used in solution with borax.

Sodium Salicylate is more soluble than the acid and less irritant to the stomach, while in doses about 50 per cent. larger it is equally efficient. It is employed in 3- to 5-grain doses internally after meals, to arrest gastric fermentation, and to prevent acidity and flatulence. It is used instead of the acid in acute and chronic rheumatism, to relieve headaches, and for phlegmasia alba, in which it is considered very efficient,—also in cases where there is a tendency to the formation of gall-stones. It is considered a very efficient remedy to cut short an attack of tonsillitis, a "bad cold," and also other acute affections of the respiratory mucous membrane.

Lithium Salicylate is also non-irritant and is supposed to act towards uric acid in the same manner as the other salts of this metal. It is expected to be of especial value in acute rheumatism and rheumatic gout.

Salol is one of the most efficient remedies for duodenal catarrh, catarrh of the bile-ducts and catarrhal jaundice; also in the bilious form of sick-headache, and in some forms of neuralgia. Its therapeutic value depends chiefly upon its property of splitting up in the alkaline fluids of the intestine into Salicylic Acid and Phenol compounds, whereby it effects the thorough antisepsis of the intestinal tract and performs the work of its constituent elements upon the organism. In all affections associated with micro-organisms in the intestines, as acute diarrhœa, cholera, dysentery, etc., it has done most excellent service; even in Asiatic Cholera. It is highly praised in epidemic influenza (grippe), having proven itself remarkably efficient in the treatment of recent epidemics of that affection.

Salol is a remedy of very great value in typhoid fever; disinfecting the ulcerated intestines, it promotes the healing process therein, and hinders reinfection. It is highly recommended in dysentery, in cholera, and in infantile diarrhœa. Given in the latter affection, a dark staining of the child's diapers is often noticed, which is due to the development of carbolic acid from the remedy. Its greatest power is manifested over acute rheumatism, in which disease many clinicians maintain that it has no superior, if given in 15- to 30-grain doses, up to 2 drachms in the 24 hours, and continued for some time after the acute symptoms have subsided. In large doses, however, it is liable to induce symptoms of carbolic acid poisoning, which may be met by administering sodium sulphate or any other sulphate. It proves to be an efficient disinfectant in catarrh of the bladder, its constituents being excreted with the urine, and coming in contact with the vesical mucous membrane for a considerable length of time. It is much quicker in its actionup on the urine than ammonium benzoate, as in a day or two, ordinarily, the urine loses its foul odor and alkalinity and becomes clear. Dissolved in Retinol, it is considered especially useful in subacute cystitis, having conquered cases in which other remedies had proven ineffectual.

Externally, it is employed as an antiseptic and deodorant powder, against impetigo, eczema, sycosis and other skin diseases; and has done good service as an insufflation in the treatment of ozæna. In spirituous solutions (5 per cent.) it is used with various flavoring agents in the preparation of mouth-washes, and dentifrices; and it also enters into the composition of soaps, face powders, and other toilet articles. A mixture of equal parts of Camphor and Salol, heated together, has given good results in the treatment of suppurations of the middle ear; giving no pain and setting up no inflammation of the parts.

Salix Nigra, the *Pussy Willow*, grows along streams in the Southern States. A fluid extract is on the market, and may be used in doses of ʒss thrice daily, as a sexual sedative.

Salophen is considered non-toxic in action upon the organism, while affording all the medicinal qualities of Salol. It has been employed with success, in dosage of ʒj to ʒjss daily, in the treatment of acute rheumatism, acute rheumatic arthritis, typhoid fever, cholera and allied conditions; also in neuralgia and sciatica, gastro-enteritis, pyelitis, and cystitis. In intestinal dyspepsia, with flatulence, and in gastrectasis it has been used with decided benefit, in the latter affection chiefly for the relief of the fermentive disturbances to which the dilated stomach is so liable.

Salipyrin has been employed with excellent results in acute and chronic rheumatism, rheumatic sciatica, neuralgia, and influenza. In rheumatic fever 15 grain doses are given at short intervals (½ hour to 1 hour), until about ʒij have been taken, continuing with smaller doses for a long time after convalescence, to prevent relapses. A dose of 8 grains is often sufficient against neuralgia. It was extensively used during the epidemic of influenza in 1891, and highly extolled for efficiency therein, as well as for its freedom from cardiac action. As it is not obtainable in this country, by reason of a legal conflict between its patentees and those of Antipyrin, and as it is a very loose combination at best, Dr. Squibb suggests that there is no good reason whatever why as good results should not be obtained from the administration of its constituents in conjunction, in proper doses to suit each individual case, and in the proportion of about 3 of Salicylic Acid to 2 of Antipyrin.

SALVIA, Sage,—the leaves of *Salvia officinalis*, the common garden Sage, a perennial plant of the nat. ord. Labiatæ, native in Southern Europe, but cultivated in our gardens for its strong, fragrant odor. The leaves are about 2 inches long, finely crenulate, grayish-green, thick and wrinkled; soft, hairy and glandular beneath, of aromatic odor and bitterish, astringent taste. They contain tannin, resin, etc., and a volatile oil which consists of *Salviol* ($C_{10}H_{16}O$), camphor and terpenes. There are no official preparations. Dose of the powdered leaves, gr. xx–xxx, in infusion.

Sage is aromatic, stimulant, tonic, astringent, and a vulnerary. It was highly esteemed in ancient times, and even yet is popular as a domestic cure-all with many people. In an infusion it may be used as a beverage in febrile conditions and to check sweating, also for the night-sweats of phthisis. Like other members of the same class it has a slight influence over enteralgia and flatulence. It makes a good astringent and stimulating gargle.

SAMBUCUS, Elder,—the flowers of *Sambucus canadensis*, the common Elder, a shrub of the nat. ord. Caprifoliaceæ, from 6 to 10 feet high, having small white flowers disposed in loose cymes of five divisions, the cream-colored corolla being whorl-shaped with five stamens on the tube. The berries are small, globular, and when ripe of a deep purple color. The plant contains a small quantity of a volatile oil, also a resin and valerianic acid. The common Elder of Europe (*S. nigra*) is more of a tree, and is official in the B. P. There are no official preparations. Dose, gr. xxx–ʒj, in hot infusion.

Elder-flowers are stimulant and diaphoretic, also perhaps diuretic in some degree. The berries are diaphoretic and laxative, while the inner bark is a hydragogue cathartic and in large doses emetic. Formerly the inspissated juice of the berries was employed as an alterative in rheumatism and syphilis, but at present the flowers are used only for flavoring purposes. Elder-flower Water (Aqua Sambuci, B. P.) is a nice vehicle for collyria and lotions.

SANGUINARIA, Blood-root,—is the rhizome, collected in autumn, of *Sanguinaria canadensis*, a perennial plant of the nat. ord. Papaveraceæ, which grows abundantly throughout the U. S., being one of the earliest and most beautiful of the spring flowers. It has a single white flower on an erect stalk, the petals often tinged with rose or purple. Leaf reniform, smooth, deeply lobed, yellow-greenish above, paler beneath, and strongly marked with orange-colored veins. The rhizome is about 2 inches long and ½ inch thick, cylindrical, horizontal, wrinkled, reddish-brown, fracture short, waxy, with numerous small red resin-cells, bark thin, odor slight, taste very bitter and acrid. It contains 3 alkaloids,—*Sanguinarine*, $C_{17}H_{15}NO_4$, which is probably identical with Chelerythrine (see CHELIDONIUM), *Porphyroxine*, and *Puccine*, combined with Chelidonic and Sanguinarinic acids,—also resin, gum, albumen, sugar, etc. The salts of its alkaloids are of brilliant red and orange colors and are all soluble in water. Dose of the powdered root as an expectorant, gr. j–v; as an emetic, gr. x–xx; best given in pill.

Preparations.

Extractum Sanguinariæ Fluidum, *Fluid Extract of Sanguinaria.*—Dose, ♏j–v as expectorant and stimulant; ♏x-lx as emetic, cautiously.

Tinctura Sanguinariæ, *Tincture of Sanguinaria,*—strength 15 per cent. Dose, as expectorant, ♏v–ʒj, as emetic ʒj-iij.

Sanguinarina, *Sanguinarine,* $C_{17}H_{15}NO_4$ (Unofficial),—is the chief alkaloid and probably the active principle of the plant. Dose, as an expectorant, gr. $\frac{1}{12}$–$\frac{1}{8}$; as an emetic, gr. ½ repeated in 10 minutes will produce vomiting after the second or third dose.

PHYSIOLOGICAL ACTION.

Sanguinaria is sternutatory, sialagogue, expectorant and emmenagogue, a systemic emetic, a cardiac paralyzer, a violent irritant, an acro-narcotic poison and an alterative. Its taste is bitter and acrid. It causes violent sneezing when inhaled, increases secretion by irritating the secretory organs as it is eliminated, and in full doses produces salivation, catharsis and vomiting with great depression. Overdoses are violently irritant, the heart's action being at first increased, together with the arterial tension, then markedly depressed, and finally paralyzed by stimulation of its inhibition. The reflexes are lowered by paralysis of the spinal centres, muscular contractility impaired, the pupils dilated, temperature lowered, cold sweats, great thirst and collapse supervene, and death occurs by paralysis of the cardiac and respiratory centres, often preceded by convulsions. Locally used, Sanguinaria is a feeble escharotic.

Antagonists and Incompatibles.

Opium, Amyl Nitrite, Atropine, etc., to antagonize the depression of the circulation and the local irritant action. Incompatibles are alkalies, Tannin, and most of the metallic salts.

THERAPEUTICS.

As a tonic to the stomach and a stimulant to the liver Sanguinaria or its active principle is well employed in small doses (gtt. iij of the tincture or gr. $\frac{1}{12}$ of the alkaloid) for atonic dyspepsia, duodenal catarrh and catarrh of the biliary ducts with jaundice. Respiratory affections are often remarkably amenable to its influence, particularly chronic nasal catarrh, asthma and acute bronchitis. In these affections expectorant doses are the best, namely, gtt. x of the tincture, and in the former the powder locally as a sternutatory. A decoction is a very efficient gargle in the sore-throat of scarlet fever. Sanguinaria is a very serviceable remedy in chronic bronchitis and in amenorrhœa of functional character, also in functional impotence from irritability of the organs, with daily losses and relaxation of the genitalia. By many practitioners it is considered a specific emetic in croup, but others look upon it with disfavor as too uncertain and harsh in its action. It has been thought to have alterative properties, and hence is frequently used with Stillingia and other plants in the treatment of strumous and syphilitic affections. In pneumonia of typhoid type and in pleuro-pneumonia it has undoubtedly been of great service in many cases.

Locally, the powdered root is well employed as an application to foul ulcers and fungous granulations, and by insufflation to nasal polypi, and for chronic hypertrophy of the nasal mucous membrane.

SANGUINARINE has been used with good results in pneumonia, bronchitis and atonic dyspepsia. Doses of gr. $\frac{1}{12}$ to $\frac{1}{8}$ are expectorant without irritating the stomach ; and still smaller doses (gr. $\frac{1}{20}$ to $\frac{1}{10}$) are stimulating to the gastric and intestinal secretions.

SANTALUM ALBUM, White Sandalwood,—is the source of the official Oil of Santal (see below), but is not itself official. It is a tree of the nat. ord. Santalaceæ, having its habitat in India but now nearly exterminated there ;—*Santalum citrinum*, the yellow Sandalwood, from the Sandwich and Feejee Islands, is more commonly met with in commerce.

Preparations.

Oleum Santali, *Oil of Santal* (*Oil of Sandalwood*),—a volatile oil distilled from the wood of *Santalum album;* a pale-yellow liquid, of sp. gr. about 0.975, soluble in alcohol, of peculiar and aromatic odor, pungent taste and acid reaction. Dose, ♏x–xxx, in emulsion or capsule.

Extractum Santali Fluidum, *Fluid Extract of Santal* (Unofficial),—made with alcohol as a menstruum. Dose, ʒj–iij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Sandalwood is a very agreeable perfume. The Oil is astringent to mucous membranes, producing dryness of the fauces, thirst, colic, and a sense of fulness in the renal regions. In concentrated form it is a local irritant, but the effects of large doses have not been studied. It is extensively used in chronic bronchitis and in gonorrhœa, forming the contents of proprietary capsules which are sold for the cure of the latter disease in all drug stores. As found in the shops it is extensively adulterated with Oil of Cedar, and hence is a very unreliable remedy.

SANTALUM RUBRUM, Red Saunders,—is the wood of *Pterocarpus santalinus*, a tree of the nat. ord. Leguminosæ, native in India. It comes as a dark reddish-brown, heavy, coarse wood, in chips or as a coarse powder, nearly inodorous and tasteless, not imparting any red color to water when macerated in it, but coloring alcohol, ether and alkaline solutions a bright red. The wood has no medicinal properties and is employed solely for the purpose of coloring alcoholic preparations. It is a constituent of Tinctura Lavandulæ Compositus.

SANTONICA, Levant Wormseed,—the unexpanded flower-heads of *Artemisia pauciflora*, a small, perennial plant of the nat. ord. Compositæ, which grows in Asia Minor, Turkestan, etc., and contains a volatile oil and the peculiar, crystalline principle, *Santonin* (see below). Flower heads about $\frac{1}{12}$ inch long, pale-greenish brown, smooth, resembling seeds in appearance, but consisting of imbricated involucral scales with a green midrib, enclosing 4 or 5 tubular florets; odor strong and peculiar, somewhat camphoraceous, taste aromatic and bitter. Dose, gr. x–lx.

Santoninum, *Santonin,* $C_{15}H_{18}O_3$,—the neutral principle obtained from Santonica. Occurs in colorless, prismatic crystals, turning yellow on exposure to light, odorless, of bitter after-taste, and neutral reaction, nearly insoluble in cold water, but soluble in 250 of boiling water, in 40 of alcohol, 3 of boiling alcohol, 140 of ether, 4 of chloroform, also in solutions of the caustic alkalies. Dose, gr. ¼–j for a child, gr. j–v for an adult, not repeated too soon, as the action of the drug is slow.

Preparation.

Trochisci Santonini, *Troches of Santonin,*—each troche contains about ½ grain of Santonin, with Sugar, Tragacanth, and Stronger Orange Flower Water. Dose, j–v, as per age.

Santonin and its preparations are sensitive to light and should be kept in amber-colored bottles tightly corked.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

SANTONIN is anthelmintic to the round worm (Ascaris lumbricoides), also but in less degree to the thread-worm (Oxyuris vermicularis). It is taken into the blood as Sodium Santoninate, and affects the cerebral faculties and the vision, objects appearing at first blue, green or red, then yellow (chromatopsia), often succeeded by blindness for a week or more. Large doses disturb the consciousness of the patient, produce a sort of intoxication, tremors, weakness, with enfeebled respiration and slowing of the pulse, coldness of the surface, vomiting, sweating, mydriasis, convulsions and death from failure of respiration. A dose of 2 grains is said to have proved fatal to a feeble child of five years old. It is excreted by the kidneys, coloring the urine if acid a greenish-yellow, if alkaline a reddish-purple, and produces considerable enuresis.

As an anthelmintic Santonin is the most certain agent against the round-worm, and is best administered in powder with Calomel at bedtime after a day of fasting, a Senna-draught or a dose of Castor Oil being used the following morning. It also acts fairly well in suppository against the thread-worm, but is inoperative against tape-worm. Some observers consider it more promptly efficient when given in Castor Oil, and that the oil lessens the risk of evil after-effects. It has also been prescribed with great benefit for nocturnal incontinence of urine, and for certain eye affections, particularly amaurosis from atrophic or inflammatory changes in the retina and optic nerve. It should never be given to children during a fever, nor when the bowels are constipated, for fear of toxic results.

SAPO, Soap, *White Castile Soap,*—is Soap prepared from soda and olive oil; a whitish solid, hard, yet easily cut when fresh, of faint, peculiar odor free from rancidity, a disagreeable, alkaline taste, and alkaline reaction; readily soluble in water and in alcohol. Is an ingredient of several of the official pills.

Sapo Mollis, *Soft Soap* (*Green Soap*),—is Soap prepared from potassa and linseed oil; a soft, unctuous mass, of a yellowish-brown color, soluble in about 5 of hot water and in 2 of hot alcohol. The name Green Soap is a misnomer.

INSOLUBLE SOAPS are combinations of the oily acids with earths and metallic oxides. Two of them are official, viz.,—the Soap of the Monoxide of Lead (Emplastrum Plumbi) and the Soap of Lime (Linimentum Calcis).

Saponification is a process of double decomposition between a fat (stearate, palmitate or oleate of glyceryl) and an alkali, in which glycerin and the metallic salt of the fatty acid are formed. The glycerin, not being saponifiable, is set free, but the fatty acid (stearic, palmitic or oleic) unites with the salifiable base to form soaps, which are therefore mixed stearates, oleates and palmitates of various bases. Nearly all soaps are oleates or palmitates (or both) of sodium or potassium (or both). Hard soaps are soda soaps, soft soaps are potassium soaps. [Compare the articles Oleum Olivæ, Adeps, Acidum Oleicum, Glycerinum, etc.]

Unofficial Soaps.

Sapo Animalis, *Curd Soap*,—official in the Br. Phar.,—is made with Soda and a purified animal fat, consisting chiefly of Stearin. Used in pills and suppositories.

Sapo Medicatus,—official in the Fr. Codex,—is a Soda soap prepared from expressed Almond Oil.

Preparations.

Emplastrum Saponis, *Soap Plaster*,—has of Soap 10, Lead Plaster 90, Water q. s.

Linimentum Saponis, *Soap Liniment*,—has of Soap 7, Camphor 4½, Oil of Rosemary 1, Alcohol 75, Water to 100. **Opodeldoc** is a similar preparation. Soap Liniment is an ingredient of Chloroform Liniment.

Linimentum Saponis Mollis, *Liniment of Soft Soap* (*Tincture of Green Soap*),—has of Soft Soap 65, Oil of Lavender 2, Alcohol 30, Water to 100.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

SOAP is a laxative, antacid and antilithic; externally it is a stimulating discutient, and is used for cleansing the skin, removing fatty substances and softening the epidermis, but if too long applied it may prove decidedly irritant. It is a good antidote in poisoning by acids, and should be administered freely in such cases until more energetic alkalies can be obtained. In aqueous solution it makes a useful enema for constipation, or a plug of soap may be inserted into the rectum.

SOFT SOAP is a powerful detergent stimulant and is much employed in skin diseases, especially eczema rubrum, in which the tincture is well rubbed on, the diseased skin well washed and then covered with a bland ointment. The tincture is the most elegant form for use, and may be diluted with three parts of alcohol for shampooing the scalp.

The Liniment is used with friction in sprains, bruises and stiff joints, being a little more stimulating than camphor-liniment. It makes a good basis for extemporaneous liniment prescriptions.

SARSAPARILLA,—is the root of *Smilax officinalis*, *Smilax medica*, and of other undetermined species of *Smilax*, plants of the nat. ord. Liliaceæ, growing in Mexico, Central America, Brazil, etc. There are six commercial varieties on the market, which are generally put up in differently formed bundles. The roots are about as thick as a goose-quill, reddish-brown, several feet in length, covered with rootlets and folded in bundles about 18 inches long, taste mucilaginous, bitter and acrid. It contains starch, resin, calcium oxalate, an essential oil, and an acrid neutral principle named *Parillin* or *Smilacin*, which when acted on by dilute sulphuric acid affords another principle, *Parigenin*.

Preparations.

Extractum Sarsaparillæ Fluidum, *Fluid Extract of Sarsaparilla*.—Dose, ℥ ss–j.

Extractum Sarsaparillæ Fluidum Compositum, *Compound Fluid Extract of Sarsaparilla*,—has of Sarsaparilla 75, Glycyrrhiza 12, Sassafras 10, Mezereum 3, Glycerin 10, Water and Alcohol to 100. Dose, ℥ ss–j.

Syrupus Sarsaparillæ Compositus, *Compound Syrup of Sarsaparilla,*—has of the Fluid Extract 20, Fl. Ext. of Glycyrrhiza 1½, Fl. Ext. of Senna 1½, Sugar 65, Oils of Sassafras, Anise and Gaultheria, each 0.01, Water to 100. Dose, ʒj–℥j. A good vehicle for Potassium Iodide.

Decoctum Sarsaparillæ Compositum, *Compound Decoction of Sarsaparilla,*—has of Sarsaparilla 10, Sassafras 2, Guaiacum Wood 2, Glycyrrhiza 2, Mezereum 1, Water to 100. Dose, ℥j–iv.

Syrup of Sarsaparilla (Unofficial),—so much used in flavoring soda-water, is a mixture of the oils of sassafras and gaultheria in syrup.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Those who believe that Sarsaparilla has any action ascribe to it properties as a diuretic, diaphoretic, tonic and alterative. So far careful physiological experiments with the drug and its principle have given negative results. It has been used as a so-called "blood-purifier" in scrofula, chronic abscesses, necrosis, old ulcers, many cutaneous diseases, etc., but is generally combined with other agents of undoubted activity. The compound decoction is considered a good agent in tertiary syphilis, especially in debilitated subjects; while the other preparations are commonly employed as vehicles for Potassium Iodide and Mercuric Chloride in syphilis of any form. Whenever used, the compound decoction will give the best results, the hot water and its other constituents having medicinal value, if the principal ingredient has none.

SASSAFRAS,—is the root-bark of *Sassafras variifolium*, a tree of the nat. ord. Laurineæ, growing throughout the U. S., and occurs in irregular fragments of a bright, rust-brown color, strongly fragrant, taste sweetish, aromatic and somewhat astringent. The volatile oil is official, and contains, as its principal constituent, *Safrol*, also obtained from Camphor oil, and used largely to disguise the odor of the fatty bases in soap manufacturing.

Sassafras Medulla, *Sassafras Pith,*—is the pith of the tree described above. Occurs in slender cylindrical pieces, often curved or coiled, light, spongy, white, inodorous, insipid. Macerated in water it forms a mucilaginous liquid which is not precipitated on the addition of alcohol.

Mucilago Sassafras Medullæ, *Mucilage of Sassafras Pith,*—has of the pith 2, in water 100. Dose, indefinite.

Oleum Sassafras, *Oil of Sassafras,*—a volatile oil distilled from Sassafras,—a colorless or yellowish liquid, having the odor of Sassafras, a warm, aromatic taste and a neutral reaction, readily soluble in alcohol. Sp. gr. about 1.080. Treated with cold nitric acid it becomes of a dark red color, and is finally converted into a red resin. Dose, ♏j–iv.

Infusum Sassafras, *Infusion of Sassafras* (Unofficial),—is a popular "tea" which may be taken *ad libitum*.

Sassafras is a constituent of the three compound Sarsaparilla preparations.

Sassafras is a stimulant diaphoretic when used in quantity of the hot infusion. It enjoys a popular reputation as a "blood-purifier," and has a destructive influence on infusoria. It is employed chiefly in combination with Sarsaparilla and Guaiacum in cutaneous disorders and rheumatic and syphilitic affections. The mucilage of the pith is an excellent demulcent drink in acute gastritis or enteritis, or in poisoning by irritant or corrosive agents. It may also be used in extemporaneous prescriptions to hold insoluble substances in suspension and for flavoring purposes. The oil is chiefly used for flavoring in mixtures and confectionery. The syrup popularly known as "Sarsaparilla" is composed of Oil of Sassafras and Oil of Gaultheria, in syrup.

SCAMMONIUM, Scammony,—is a resinous exudation from the root of *Convolvulus Scammonia*, a plant of the nat. ord. Convolvulaceæ, growing chiefly in Syria and Asia Minor. It occurs in irregular, angular pieces or circular cakes, of a greenish-gray or blackish color, a peculiar, cheese-like odor, and a slightly acrid taste; easily triturated into a dirty-gray powder, and with water yields a smooth, greenish emulsion. It contains about 80 per cent. of *Resin*, with gum, sugar, starch, etc. The active principle, *Jalapin*, is probably identical with the Convolvulin of Jalap, and is contained in the root, the resin, etc. Dose, gr. v–x.

Preparations.

Resina Scammonii, *Resin of Scammony*,—is wholly soluble in ether. Dose, gr. iij-viij.

Extractum Colocynthidis Compositum,—(see *ante*, page 206) contains 14 per cent. of Resin of Scammony, and is an ingredient of the Compound Cathartic Pill.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Scammony is an active cathartic, stimulating the liver and the intestinal glands, and causing free purgation in a few hours, with considerable griping. Its solution in the bile is necessary to its action, and it combines with the soda in that secretion. Though quite drastic in action it is somewhat uncertain as a purgative and is generally employed in combination with similarly acting agents. It is anthelmintic against the tapeworm, and in overdoses produces a high degree of irritation.

It is used as a drastic purgative for children with Calomel or Potassium Sulphate, when an active cathartic is indicated. In the same way it is the appropriate agent on the principle of derivation in dropsies and cerebral affections, also in torpid states of the intestines with much slimy intestinal mucus; but it is contraindicated in cases attended by irritability of the stomach and bowels.

SCILLA, Squill,—is the sliced bulb of *Urginea maritima*, a perennial plant of the nat. ord. Liliaceæ, growing on the shores of the Mediterranean. It comes in narrow segments about two inches long, of yellowish-white or reddish color, slightly translucent, inodorous, mucilaginous, bitter and acrid to the taste. Its active principle has not yet been definitely isolated, but it is probably the acrid, bitter glucoside *Scillitoxin*. Other principles have been obtained and named *Scillipicrin*, *Scillitin* and *Scillin*, also *Sinistrin*, a peculiar carbo-hydrate or mucilage, and the usual constituents of plants. Dose, in powder, gr. j–iij.

Preparations.

Extractum Scillæ Fluidum, *Fluid Extract of Squill*.—Dose, ♏ j–v.
Tinctura Scillæ, *Tincture of Squill*,—15 per cent. Dose, ♏ v–xxx.
Acetum Scillæ, *Vinegar of Squill*,—10 per cent. Dose, ♏ x–ʒ j.

Syrupus Scillæ, *Syrup of Squill*,—has of the Acetum 45 parts, with Sugar 80, and Water to 100. Dose, ʒ ss–ij.

Syrupus Scillæ Compositus, *Compound Syrup of Squill*,—has of the fluid extracts of Squill and Senega, each 8, Tartar Emetic 0.2, Calcium Phosphate 1, Sugar 75, Water to 100. Is known popularly as *Coxe's Hive Mixture*, and contains a little less than one grain of Tartar Emetic to the fluid ounce (15 grains in 17 fl. ozs.). Dose, for children ♏ v–ʒj, the latter being an emetic dose; for adults, as an expectorant ♏ xx–xxx.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

In small doses Squill is expectorant, in larger doses emetic and diuretic, and in overdoses it is a violent irritant poison, producing nausea, vomiting, purging, gastro-enteritis, strangury, bloody urine, perhaps suppression of urine, paralysis and convulsions, with death by paralysis of the heart in systole. Medicinal doses slow the heart, making the pulse stronger and slower, raising the arterial tension, and increasing the flow of urine (like Digitalis). Its active constituents diffuse into the blood, and its systemic effects follow on its application to the skin and seem to be exerted upon the mucous membrane of the secretory organs, especially affecting the bronchial, gastro-intestinal and genito-urinary.

Squill is employed in medicine for its expectorant and diuretic effects. It is especially applicable in cardiac dropsy, combined with Digitalis or the saline diuretics, and in chronic bronchitis, in which it may be associated with Ipecac or Ammonia, Asafœtida, Benzoin, etc. It is also used in croup, but is usually combined in this affection with some other emetic, as Tartar Emetic in the Compound Syrup, a mixture which may produce very depressing effects and should be used with caution. In whooping-cough and other irritant coughs with tickling sensations in the throat the Syrup or Vinegar of Squill is often of great service.

The action and uses of Squill should be studied in connection with those of Digitalis and Ipecacuanha.

SCOPARIUS, Broom,—the tops of *Cytisus Scoparius*, the Broom-plant, a common garden shrub of the nat. ord. Leguminosæ, having small, downy leaves and numerous large golden-yellow flowers. It occurs in thin, flexible twigs, usually free from leaves, nearly smooth, tough, of a peculiar odor when bruised and a disagreeably bitter taste. It contains *Scoparin*, $C_{21}H_{22}O_{10}$, a neutral, crystallizable principle; and *Sparteine*, $C_{15}H_{26}N_2$, a volatile, liquid alkaloid, having no oxygen, but possessing very decided basic qualities and being highly poisonous.

Preparations.

Extractum Scoparii Fluidum, *Fluid Extract of Scoparius*,—made with diluted alcohol. Dose, ʒ ss–ij.

Decoctum Scoparii, *Decoction of Broom-tops* (Unofficial),—℥j to the pint. Dose, ℥j every three hours until a diuretic effect is produced.

Sparteinæ Sulphas, *Sparteine Sulphate*,—white, prismatic crystals, or a granular powder, of slightly saline and bitter taste, very soluble in water and alcohol. Dose, gr. $\frac{1}{15}$–$\frac{1}{2}$, hypodermically;—gr. $\frac{1}{2}$–ij *per orem*. Small doses, gr. $\frac{1}{16}$–$\frac{1}{4}$, every five hours, for cardiac action;—larger, gr. j–ij, for diuresis. (Clarke.) Larger doses are necessary, say gr. iss–iij, ter die. (Prior.)

PHYSIOLOGICAL ACTION.

Broom-tops are diuretic and laxative, also emetic and cathartic in large doses. In the form of decoction they have long been a favorite diuretic and vehicle for other diuretics, in the treatment of dropsies, both cardiac and renal, but are considered most reliable in the dropsy of renal origin.

SPARTEINE has been thought to resemble Coniine in its action, paralyzing the end-organs of the motor nerves and vagi, lowering the reflex excitability of the cord, and causing death by paralyzing the respiratory centre in the medulla. Recent observations, however, place it in the Digitalis group, and in the front rank among the members thereof.

In small doses Sparteine slows and strengthens the heart-beats, and raises arterial tension, at the same time increasing the cutaneous and renal circulation, so that the surface becomes flushed and moist, and in some cases marked diuresis and diaphoresis occur. The respiration, at first quickened, is soon slowed and deepened,—the patient having a sense of increased warmth and well-being, and if suffering from irregular cardiac action, præcordial distress and dyspnœa, these symptoms are promptly relieved. If the pulse has been abnormally slow Sparteine will quicken it, though its general action is to slow the cardiac rate. An overdose brings on marked palpitation, a small and rapid pulse of very high tension, præcordial pain and a sense of "tightness" about the chest, with anxiety, and a feeling of intense debility, perhaps even muscular tremor. Death occurs by asphyxia from depression of both the centre and the muscles of respiration.

The action of Sparteine upon the circulation is manifested quickly as compared with that of other similarly-acting drugs. In $\frac{1}{2}$ hour after its ingestion the pulse is markedly slower,—in another $\frac{1}{2}$ hour the arterial tension rises, and both effects last from 5 to 6 hours. When taken regularly for several days or weeks its influence remains for nearly a week after its discontinuance. There is, however, no danger of cumulative action, and though the dosage employed has varied from gr. $\frac{1}{16}$ every 4 hours, to gr. xij in 24 hours, no toxic action was observed, nor was there any evidence of accumulation, even when given continuously for 3 to 4 months. (Clarke.) Only from a dose of gr. xxxj were evil effects observed. (Prior.)

Its diuretic power on healthy persons is denied by some observers and affirmed by others, though all acknowledge it in disease. It is accompanied by increased excretion of urea,—is due to the increase of blood-pressure both behind and in front of the renal circulation,—and is produced only by large doses, gr. $\frac{1}{2}$–gr. ij.

Sparteine acts directly on the cardiac muscle, as well as upon the inhibitory apparatus, thus giving greater force to the cardiac contractions, and regulating (generally slowing) the pulse-rate. It also stimulates the vasomotor centre to contract the vessels throughout the splanchnic area, thus increasing the circulation in the skin and kidneys, and raising arterial tension generally.

THERAPEUTICS.

Broom-tops are a favorite remedy for dropsies of cardiac origin, and for the general anasarca of chronic kidney disease, but are inadmissible in acute renal affections or where there is pulmonary congestion or inflammation.

Sparteine has been employed with very great benefit in cardiac affections requiring stimulation of the heart's action with the smallest possible increase of arterial tension, relief of dyspnœa, præcordial pain, palpitation and œdema. In such cases small doses, gr. $\frac{1}{16}$ to $\frac{1}{4}$, are best, and as the influence of the drug is remarkably sustained, they need not be repeated oftener than once in 5 or 6 hours. It has given the most marked satisfaction in mitral regurgitation, in which it relieves all the symptoms; also in mitral stenosis, when the pulse is small, weak and irregular. In aortic regurgitation, it quiets excited action of the heart, without unduly prolonging the systole, and is of great value. Used in chronic Bright's disease, with hypertrophy and high arterial tension, it stimulates the heart without increasing the tension. In exophthalmos, it gives remarkable relief to all the symptoms. For cardiac palpitation and arrhythmia, small doses are of great service. In asthma it is of signal benefit, cutting short the paroxysms, and rendering their recurrence much less frequent. In the opium-habit it is used at periods of depression during the treatment, to overcome the "plateau" shown in the sphygmograph trace, by stimulating the cardiac action. (Jennings.) For this purpose, doses of gr. iss–iij three or four times daily are necessary. (Prior.)

SCUTELLARIA, Skull-cap,—is the plant *Scutellaria lateriflora*, an indigenous, perennial herb of the nat. ord. Labiatæ, growing in moist places and along ditches; having small, pale-blue flowers disposed in long, leafy racemes, of slight odor and bitterish taste. It contains a little volatile oil, traces of a bitter principle, besides fat, tannin, sugar.

Extractum Scutellariæ Fluidum, *Fluid Extract of Scutellaria.*—Dose, ʒ ss–ij.

Scutellaria produces no very obvious effects when taken internally. By some practitioners it is said to have tonic, nervine and antispasmodic powers, and it has been used in domestic practice to calm the nervous system in diseases characterized by restlessness, tremors, spasms, twitching of the muscles, hyperæsthesia, etc., as chorea, delirium tremens, nervous exhaustion from fatigue or over-excitement, hydrophobia, hysteria and epilepsy. The Scutellarin of the eclectics is not a proximate principle, but an extract precipitated by alum from a concentrated aqueous tincture. It is given in dose of gr. j–iv.

SENEGA,—is the root of *Polygala Senega*, an indigenous, perennial plant of the nat. ord. Polygaleæ, having small, white flowers in a close spike at the summit of the stem. The root is about 4 inches long, with a knotty crown and tortuous, spreading branches, thick bark inclosing a porous, yellowish wood ; odor slight but unpleasant, taste at first sweetish, afterwards acrid. Its principal constituent is the glucoside *Senegin*, $C_{32}H_{54}O_{18}$, which is identical with Saponin, and closely allied to Digitonin. It is a white, amorphous powder, readily soluble in alcohol and hot water, forming a soapy emulsion when mixed with boiling water, and decomposed by HCl into sugar and *Sapogenin*, $C_{14}H_{22}O_2$.

Preparations.

Extractum Senegæ Fluidum, *Fluid Extract of Senega.*—Dose, ♏x–xx.

Syrupus Senegæ, *Syrup of Senega,*—has of the fluid extract 20, Aqua Ammoniæ ½, Sugar 70, Water to 100. Dose, ℥j–ij.

Syrupus Scillæ Compositus, *Compound Syrup of Squill,*—contains 8 per cent. of Senega. (See page 382.) Dose for children, ♏v–℥j; for adults as an expectorant, ♏xx–℥ss.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

SENEGA is a stimulating expectorant, a diuretic and a diaphoretic. It causes irritation of the throat, with some salivation and gastro-intestinal irritation, an inclination to cough, increased bronchial secretion, and perhaps some diuresis and diaphoresis. Inhaled as a snuff it is very irritant to the mucous membrane of the nose, causing cough, sneezing and nasal catarrh. SENEGIN is violently irritant and a powerful depressant to the heart, vessels, nervous and muscular systems. It is excreted by the bronchial mucous membrane, the kidneys and the skin, all of which it stimulates and in large quantity irritates.

The use of Senega is chiefly that of a stimulating expectorant in chronic bronchitis, the second stage of acute bronchitis, typhoid pneumonia, asthma, croup, and as a diuretic in dropsy due to renal disease. It removes the tightness and oppression experienced in the subacute chest affections, relieves the cough and rapidly promotes expectoration. When the mucous is tough and scanty this remedy is of no value. It has been used with benefit in amenorrhœa, given in saturated decoction for two weeks before the expected period. In chronic rheumatism and in rheumatic paralysis its stimulating and diaphoretic powers have been of great value. Senegin has been successfully used in 2-grain doses as a remedy for uterine hemorrhage.

SENNA,—the leaflets of *Cassia acutifolia* (Alexandria Senna), and of *Cassia angustifolia* (India Senna), shrubs of the nat. ord. Leguminosæ, growing in Egypt and India. The leaflets are from 1 to 2 inches long, lanceolate, brittle, dull green, of peculiar odor, and nauseous, bitter taste.

They contain an amorphous glucoside, *Cathartic Acid*, $C_{180}H_{192}N_2SO_{82}$, which forms salts with bases and may be decomposed into glucose and Cathartogenic Acid. Other constituents are *Sennapicrin* and *Sennacrol*, both glucosides;—*Catharto-mannite*, a peculiar unfermentable sugar; also a coloring matter allied to Chrysarobin and various vegetable salts.

Preparations.

Extractum Sennæ Fluidum, *Fluid Extract of Senna*,—an excellent preparation. Dose, ʒ ss–jss.

Syrupus Sennæ, *Syrup of Senna*,—has of Alexandria Senna 25, Oil of Coriander ½, Alcohol 15, Sugar 70, Water to 100. Dose, ʒ ss–ij.

Confectio Sennæ, *Confection of Senna*,—has of Senna 10, Cassia Fistula 16, Tamarind 10, Prune 7, Fig 12, Sugar 55½, Oil of Coriander ½, Water to 100. Is sold under the trade names "*Tamar-Indien*," "*Tropical Fruit Laxative*," etc. Dose, ʒ j–ij.

Infusum Sennæ Compositum, *Compound Infusion of Senna* (*Black Draught*),—has of Senna 6, Manna 12, Magnesium Sulphate 12, Fennel 2, Boiling Water 80, Cold Water to 100. Dose, ℥ j–iij.

Pulvis Glycyrrhizæ Compositus, *Compound Liquorice Powder* (See under Glycyrrhiza),—contains 18 per cent. of Senna. Dose, ʒ ss–ʒ jss.

Syrupus Sarsaparillæ Compositus, *Compound Syrup of Sarsaparilla* (See under Sarsaparilla),—contains 1½ per cent. of the fluid extract of Senna. Dose, ʒ j–℥ j.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Senna is a very efficient and safe cathartic, producing, when taken internally, copious yellow stools in about 4 hours, with considerable griping and flatulence, which may, however, be lessened by combining it with carminatives. Its action is chiefly expended on the small intestine, and it increases both peristalsis and secretion. It has no irritant quality in ordinary medicinal doses, and does not produce hypercatharsis, nor leave constipation as an after-result. Its infusion injected into the veins causes both vomiting and purging; and in large doses *per orem* it produces nausea, vomiting, flatulence, excited pulse, and drastic purgation with severe tenesmus, but its effects are never poisonous. It may cause hemorrhoids and increase the menstrual flow in women. Given to a nursing mother her milk will acquire purgative powers. In some very susceptible persons the odor of the leaves or of the infusion will cause an evacuation of the bowels. Its odor and taste are particularly disagreeable, especially when administered in infusion.

Senna would probably take rank as our best and safest cathartic but for the nauseousness of its smell and taste. It is a favorite laxative in England for children, and is used with great benefit in habitual constipation or where prompt evacuation of the bowels is required. In hemorrhoids and anal fissures it is employed to produce soft and easy motions; but if a tendency to hemorrhoids exists, the use of this drug in cathartic doses will cause irritation of the part and induce an acute attack. For the same reason it is contraindicated in any such conditions as hemorrhage or inflammation of the intestinal mucous membrane, hemorrhoids, menorrhagia, abortion, etc. The least disagreeable of its preparations are the Confection of Senna and the Compound Liquorice Powder.

SERPENTARIA, Virginia Snake-Root,—is the rhizome and roots of *Aristolochia Serpentaria* and of *Aristolochia reticulata*, indigenous herbaceous plants of the nat. ord. Aristolochiaceæ, growing in rich, shady woods, with purple flowers arising from joints near the root. The rhizome is about an inch long, thin and bent, having on the upper side short stem-remnants, on the lower side numerous thin, branching roots; odor and taste are aromatic and camphoraceous. It contains a volatile oil, a camphor-resin and a bitter principle named *Aristolochine*, which is soluble in both alcohol and water. All its preparations should be made from the fresh root, as it deteriorates by keeping.

Preparations.

Extractum Serpentariæ Fluidum, *Fluid Extract of Serpentaria.*—Dose, ♏ x–xxx.

Tinctura Serpentariæ, *Tincture of Serpentaria,*—10 per cent. Dose, ʒ ss–ij.

Tinctura Cinchonæ Composita, *Compound Tincture of Cinchona,*—has two parts of Serpentaria in 100. (See *ante*, under Cinchona.) Dose, ʒ j–ij.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Serpentaria is a stimulant expectorant and tonic, also a cardiac stimulant, a diaphoretic, diuretic, emmenagogue, aphrodisiac, and somewhat of an antiperiodic. Its taste is warm and pungent, its odor characteristic. Small doses promote appetite and digestion, increase the bronchial and intestinal secretions, the action of the heart, the cutaneous circulation and the surface temperature, and produce considerable mental exhilaration. Large doses are irritant, causing nausea and vomiting, vertigo and headache, colic, borborygmi, rectal tenesmus, flatulent distention and frequent but not watery stools. The irritant action seems to produce gas rather than fluid. Pruritus ani and hemorrhoids are occasionally caused by its use.

Serpentaria is chiefly employed as a vehicle for other stimulant drugs, but has many uses of its own. In bronchial affections it is extremely valuable as a stimulating expectorant. In typhoid pneumonia it is a good vehicle for ammonium carbonate, and in the exanthemata is extremely useful when much depression exists. It is indicated in typhoid conditions generally, and in the amenorrhœa of anæmia and chlorosis it is an efficient emmenagogue in many cases. It will often restore the waning sexual power in functional impotence, while in bilious vomiting it frequently checks the nausea and settles the stomach. It is used as a vehicle for cinchona in remittent fever. In diphtheria, scarlatina, etc., an infusion forms an excellent gargle. Its diaphoretic and diuretic properties, though slight, are sometimes of avail in chronic rheumatism.

SESAMI OLEUM, Oil of Sesamum (*Teel Oil, Benné Oil*),—is a fixed oil expressed from the seeds of *Sesamum indicum*, or Benné plant (nat. ord. Pedaliaceæ), which is a native of India, but is cultivated in the southern portion of the U. S. It is a yellowish or yellow, oily liquid, inodorous or nearly so, having a bland, nut-like taste and a neutral reaction. It is a bland fixed oil, very similar in its properties to olive oil, and may be used for the same purposes. It is rich in Olein (76 per cent.) and keeps better than olive oil. It is chiefly employed as a hair-oil.

SEVUM, Suet (*Mutton Suet*),—is the internal fat of the abdomen of *Ovis Aries* (the Sheep), purified by melting and straining. It should be kept in well-closed vessels and not used after it has become rancid, as it will on exposure to air. It is a white, smooth, solid fat, of bland taste and neutral reaction, insoluble in water or cold alcohol, soluble in 44 of boiling alcohol, 60 of ether, and slowly in 2 of benzin. It consists chiefly of Stearin, but also has Palmitin and Olein, and is a constituent of Unguentum Hydrargyri. It is a harder fat than lard and more liable to turn rancid. It is used in ointments and liniments to give them greater consistency, but may be applied alone as a dressing to ulcers. In physiological action and therapeutics it follows the other oils and fats. (See under MORRHUÆ OLEUM and OLIVÆ OLEUM, *ante*.)

SILICATES of Sodium (Na_2SiO_3), of Potassium (K_2SiO_3), and of Magnesium ($2MgO3SiO_2$) are used in medicine and surgery, a solution of the Sodium Silicate being official.

Liquor Sodii Silicatis, *Solution of Sodium Silicate* (*Soluble Glass Solution*),—is a semi-transparent, colorless or yellowish, viscid liquid, odorless, of sharp saline and alkaline taste and alkaline reaction, of sp. gr. 1.300 to 1.400. A small quantity should not produce any caustic effect when applied to the skin. It usually contains about 20 per cent. of Silica and 10 per cent. of Soda, and is used on bandages to make immovable dressings, being lighter than plaster-of-Paris and stronger than starch.

Liquor Potassii Silicatis, *Solution of Potassium Silicate* (Unofficial),—also known as Soluble Glass Solution,—is used for immovable dressings in the same manner as the preceding. A mixture of 2 parts of this solution with one of the soda salt solution is said to set more quickly and firmly than either solution separately. Diluted (1 to 4) the solution of Potassium Silicate has been applied locally in erysipelas, gonorrhœa, cystitis, vaginitis, etc., as an antiseptic, and with good results.

Magnesii Silicas Hydratus, *Hydrated Magnesium Silicate* (*Meerschaum*), $2MgO, 3SiO_2 + 2H_2O$ (Unofficial),—a mineral used for the manufacture of smoking-pipes, and employed in France as a substitute for Bismuth Subnitrate in obstinate choleraic diarrhœa, to protect the intestinal mucous membrane or as an absorbent. It is given in fine powder and in doses of ʒj–iv per diem.

SINAPIS, Mustard,—is official under the two following titles, but the pharmacopœial preparations are directed to be made from Black Mustard only:—

Sinapis Alba, *White Mustard,*—the seed of *Brassica alba*, an annual plant of the nat. ord. Cruciferæ, cultivated in our gardens. It has yellow flowers in racemes, and ribbed pods with a long, ensiform beak. The seeds are about $\frac{1}{12}$ inch in diameter, yellowish, hard, almost globular with a circular hilum; embryo oily, with a curved radicle and two cotyledons, one folded over the other; inodorous, taste pungent and acrid.

White Mustard contains *Myrosin*, a ferment, and *Sinalbin*, a crystalline substance, which reacting on each other in the presence of water produce *Sulpho-cyanate of Acrinyl*, a rubefacient principle allied to the volatile oil of black mustard. It also contains *Sinapine*, an alkaloid, *Erucic* or *Brassic Acid*, and a bland, fixed oil, all three contained also in Black Mustard.

Sinapis Nigra, *Black Mustard*,—is the seed of *Brassica nigra*, an annual plant of the nat. ord. Cruciferæ, native of Europe, but naturalized in the U. S. It has small, yellow flowers standing closely together on peduncles at the end of the branches, also smooth, erect pods with a short beak. The seeds are about one-half the size of those from white mustard, black and hard, almost globular with a circular hilum; embryo as in Sinapis Alba; inodorous when dry, but when moist of a pungent, irritating odor; taste pungent and acrid.

Black Mustard contains *Myrosin*, a ferment, and *Sinigrin* (Potassium Myronate), which reacting on each other in the presence of water produce the *Sulpho-cyanide of Allyl*, or *Volatile Oil of Mustard*. It also contains *Sinapine*, an alkaloid, *Erucic* or *Brassic Acid*, and a bland, fixed oil; all three of which are contained also in White Mustard.

COMMERCIAL FLOUR OF MUSTARD (Unofficial),—is a mixture of white and black mustard seeds ground to a fine powder. It may be employed in lieu of either variety. Dose, as emetic, ʒij–iv.

Preparations.

Oleum Sinapis Volatile, *Volatile Oil of Mustard* (*Sulpho-cyanide of Allyl*), C_4H_5NS,—a colorless or pale yellow liquid, of very pungent and acrid odor and taste and neutral reaction, sp. gr. 1 018 to 1.029, almost insoluble in water but freely soluble in alcohol and ether. Dose, ♏ ⅛–¼.

Charta Sinapis, *Mustard Paper*,—consists of Black Mustard, the fixed oil removed by percolation with Benzin, mixed with Solution of Gutta-Percha and spread on paper. Each square inch should contain about gr. vj of Mustard. For local use.

Linimentum Sinapis Compositum, *Compound Liniment of Mustard*,—has of the Volatile Oil 3, Fl. Ext. of Mezereum 20, Camphor 6, Castor Oil 15, Alcohol to 100. For local use.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Locally used, Mustard is rubefacient, counter-irritant, and a nervous stimulant, causing heat, redness and severe burning pain. Its prolonged application produces vesication by inducing local inflammation. Internally it is a local emetic in full doses, in smaller a condiment and carminative. Its irritant effect on the gastric mucous membrane is much less powerful than on the skin.

Mustard is commonly used as a local application to relieve local pain, to stimulate the viscera, and to produce counter-irritation. These objects find their application in muscular rheumatism, neuralgia, colic, gastralgia, inflammation of the throat, larynx, bronchi, lungs, pleuræ and pericardium, also as a derivative in headache, cerebral congestion, and suppressed menstruation. It may also be used as a stimulant to the heart, vascular system and respiratory apparatus. When action of a mild character is desired it may be diluted with flaxseed or flour.

Internally it may be employed as an emetic in indigestion or narcotic poisoning. Its use as a condiment is familiar, acting by stimulation of the gastric mucous membrane. In overdoses it may excite severe gastritis. White Mustard seed, unground, has been used as a laxative, as it produces no irritation.

The Oil is one of the most irritant of the volatile oils, producing severe gastro-enteritis. It is used chiefly as an ingredient of stimulating liniments, but may be employed internally in small doses.

SODIUM, Natrium, Na.—This metal is represented by a number of official salts, which are generally colorless or white, and with very few exceptions are readily soluble in water. Some of them are found native, as the Chloride (in sea-water, salt lakes, salt mines),—the Nitrate (in Peruvian deserts, etc.) and the Borate (in lakes of Persia, California, etc). The Carbonate is found in the ashes of marine plants. From the Chloride is prepared the Sulphate, from this the Carbonate, and from the latter, most of the other salts are prepared. All sodium salts impart a yellow color to flame, which should not appear more than transiently red when observed through a blue glass, which cuts off the yellow rays but allows the violet ones of Potassium to be seen.

Sodium Compounds and their Preparations.

Soda, *Sodium Hydrate, Caustic Soda,* $NaOH$,—a white, hard, opaque solid, deliquescent in moist air, efflorescent in dry air, odorless, of intensely acrid and caustic taste and strongly alkaline reaction, soluble in 1.7 of water at 59° F., and in 0.8 of boiling water, very soluble in alcohol. Is a powerful caustic, but milder than Potassa, and should be kept in well-stoppered bottles made of hard glass.

Liquor Sodæ, *Solution of Soda,*—contains about 5 per cent. of the hydrate, and is prepared by dissolving Sodium Carbonate 170, in 400 of boiling Distilled Water, also 50 of Lime in the same quantity of Distilled Water, boiling, mixing the solutions gradually, again boiling and when cold adding water up to 1000 parts, straining, settling, and then removing the clear solution. Or, by dissolving 56 of Soda in 944 of Distilled Water. It is a clear, colorless liquid, odorless, of acrid and caustic taste and strongly alkaline. Dose, ♏v–ʒss, well diluted with water.

Sodii Acetas, *Sodium Acetate,* $NaC_2H_3O_2 + 3H_2O$,—large, transparent prisms, efflorescent in dry air, odorless, of saline, bitter taste and a neutral or faintly alkaline reaction, soluble in 1.4 of water and in 30 of alcohol at 59° F., in ½ of boiling water and in 2 of boiling alcohol. Dose, gr. xx–ʒj.

Sodii Carbonas, *Sodium Carbonate,* $Na_2CO_3 + 10H_2O$,—large, colorless crystals, rapidly efflorescent, with a harsh alkaline taste and strongly alkaline reaction; very soluble in water, insoluble in alcohol. By heat it undergoes aqueous fusion and then dries up, losing 63 per cent. of its weight. Of it 20 grains will neutralize 9.7 grains of Citric Acid, or 10½ grains of Tartaric Acid. Dose, gr. v–xxx.

Sodii Carbonas Exsiccatus, *Dried Sodium Carbonate,*—is the Carbonate 200 parts dried at a heat of 113° F., until it is converted into a white powder weighing 100 parts. Is chiefly used for pharmaceutical purposes.

Sodii Bicarbonas, *Sodium Bicarbonate,* $NaHCO_3$,—an opaque, white powder, permanent in the air, odorless, of cooling, saline taste, and a slightly alkaline reaction; soluble in 11.3 of water at 59° F., insoluble in alcohol, decomposed by hot water and converted into normal Carbonate. It is distinguished from the Carbonate by its solution in cold water giving a white and not a colored precipitate with solution of perchloride of mercury. Of it 20 grains neutralize 16.7 grains of Citric Acid, or 17.8 grains of Tartaric

Acid. It is a constituent of Mistura Rhei et Sodæ and of Pulvis Effervescens Compositus. Dose, gr. x–ʒj.

Trochisci Sodii Bicarbonatis, *Troches of Sodium Bicarbonate*, each troche contains of the Bicarbonate about 3 grains, with Sugar, Nutmeg and Mucilage of Tragacanth. Dose, as of the Bicarbonate.

Sodii Chloras, *Sodium Chlorate*, $NaClO_3$,—colorless, transparent tetrahedrons of the regular system, permanent in dry air, odorless; of cooling, saline taste and neutral reaction, soluble in 1.1 of water and in about 100 of alcohol at 59° F., also in 0.5 of boiling water and in about 40 of boiling alcohol. When heated it melts and then gives off a portion of its oxygen, leaving a residue of sodium chloride. Should be kept in well-stoppered bottles, and should not be mixed or heated or triturated with readily oxidizable or combustible substances. Dose, gr. v–xx.

Sodii Chloridum, *Sodium Chloride, Common Salt*, NaCl,—white, hard, cubical crystals or a crystalline powder, permanent in the air, odorless, of a purely saline taste and neutral reaction; soluble in 2.8 of water at 59 ° F., and in 2.5 of boiling water. Almost insoluble in alcohol. Dose, gr. x–ʒj.

Sodii Nitras, *Sodium Nitrate* (*Cubic Nitre, Chili Nitre, Chili Saltpetre*), $NaNO_3$,—colorless, transparent crystals, slightly deliquescent, odorless, of cooling, saline and bitter taste, and neutral reaction; soluble in 1.3 of water at 59° F., in 0.6 of boiling water, scarcely soluble in cold alcohol. Dose, ℥j–ij.

Sodii Sulphas, *Sodium Sulphate* (*Glauber's Salt*), $Na_2SO_4 + 10H_2O$,—large, colorless, transparent, monoclinic prisms, rapidly efflorescent in air; of cooling, saline taste and neutral reaction; soluble in 2.8 of water at 59° F., in 0.25 of water at 93.2° F., and in 0.47 of boiling water, insoluble in alcohol. Dose, gr. v–xx; as a purgative ℥ss–j or a third of a teaspoonful in a large glass of water.

Sodii Ethylas, *Sodium Ethylate* (*Caustic Alcohol*), C_2H_5NaO (Unofficial),—is a white powder, often having a brownish tinge, dissolving in water with a hissing sound. Upon contact with the smallest quantity of water or moist living tissue it splits into alcohol and caustic soda. An alcoholic solution is made by dissolving sodium in absolute alcohol, and is used as a caustic. Chloroform decomposes it at once into ether and sodium chloride. It should be kept in a cool place as it is liable to explode.

The **Arsenate** is described under ARSENIC;—the **Benzoate** under BENZOIN;—the **Borate** under AC. BORICUM;—the **Bromide** under BROMUM;—the **Solution of Chlorinated Soda** under CHLORUM;—the **Iodide** under IODUM;—the **Hypophosphite, Phosphate** and **Pyrophosphate** under PHOSPHORUS;—the **Nitrite** under AMYL NITRIS;—the **Salicylate** under SALICIN;—the **Sulphite, Bisulphite** and **Hyposulphite** under ACIDUM SULPHUROSUM;—and the **Sulpho-carbolate** under ACIDUM CARBOLICUM.

PHYSIOLOGICAL ACTION.

The action of the Sodium salts is similar to that of the Potassium salts, except that the former are feebler as alkalies, are not so depressant, and are not so poisonous to the cardiac muscle or the nerves. They are diffused more slowly, are neither absorbed nor excreted so readily, and have not so marked a diuretic action. Locally applied in large doses to muscular and nervous tissue they are paralyzant, but not so powerfully as potassium salts. Sodium Urate is not soluble like the urates of lithium and potassium, is therefore much less readily excreted, forming the masses called "chalk-stones" in gouty subjects. SODA is a less active escharotic than potash, having less affinity for water. LIQUOR SODÆ renders the blood and secretions more alkaline, but does not alter nutrition to the extent that liquor potassæ does. The ACETATE is converted into the Carbonate in the blood, and is a less active diuretic than the corresponding potassium salts. The CARBONATE is chiefly used in the preparation of the other salts. The BICARBONATE is slightly irritant, stimulates the secretion of gastric juice, acts as an antacid and will increase the alkalinity of the blood. The CHLORIDE is a most important food. It exists normally in the blood, where it keeps the fibrin and albumen in solution, and plays an important part in tissue change. In inflammation, being thus needed, it accumulates at the seat of the morbid action, disappearing from the urine; its reappearance therein being a sign of improvement. A solution of 0.65 parts to 100 of water does not destroy animal tissue like water alone, and may be mixed with blood without destroying the corpuscles, though strong solutions are intensely irritating. Internally used in quantity it is emetic and hemostatic. As an enema it is destructive to ascarides.

SODIUM NITRATE is a mild cathartic, and in solution is a solvent of false membranes. The SULPHATE is generally cathartic in action, though in small doses and with little water it may be passed off by the kidneys. It is mixed with the Bicarbonate to imitate the salts obtained by evaporation of Carlsbad water. The ETHYLATE is antiseptic, and a powerful but almost painless caustic.

The action of the other Sodium salts is described under the titles of the respective constituents to which their effects are mainly referable.

Antagonists and Incompatibles.

Poisoning by caustic alkalies is treated by the dilute Vegetable acids, as vinegar, cider, lemon-juice; then demulcent drinks and oils to protect the mucous membrane, and the usual vital supporters. The alkalies and their carbonates are incompatible with the acids and also with metallic salts, and the caustic alkalies decompose most alkaloids.

THERAPEUTICS.

The Sodium salts treated of in this article are not much used internally, the corresponding Potassium salts being preferred, especially when it is desired to alkalinize the urine or to promote oxidation. In the alkaline treatment of stomach affections the Sodium salts are the most efficient, especially the BICARBONATE, in small doses before meals or on an empty stomach to increase the secretion of the gastric juice. This same salt is used in diabetes to lessen the amount of sugar, in frontal headache with constipation, the pain being seated at the junction of the forehead with the hairy scalp,—also as a wash (gr. ij ad ℥j) in itching skin affections and as a lotion in burns and eczema. The CHLORIDE is used internally as an antidote in poisoning by Silver Nitrate and as an emetic, and will often relieve hemoptysis and migraine. In bilious diarrhœa it is employed in doses of gr. x–ʒj, thrice daily. Locally in baths it is a good stimulant to the skin, and in solution (½ to 1 per cent.) to wash wounds in place of water, to cleanse the nasal cavities, or to destroy ascarides, in which case it is given by enema of the strength of two tablespoonfuls to the pint. The CARBONATE may be used in dilute solution locally to prevent itching, but is chiefly employed in the preparation of the other salts. The SULPHATE is a good purgative, either alone or with the Bicarbonate in imitation of Carlsbad Salts, for bilious disorders, gouty affections, chronic constipation, obesity and diabetes mellitus. The CHLORATE has similar uses to those of Potassium Chlorate, and being more soluble can be used in stronger solutions, but this is of doubtful benefit for internal use, as it has all of the irritating power on the kidneys and destructive action on the blood possessed by the other salt. The NITRATE is employed as a mild cathartic, and in solution by atomization to destroy the false membrane in croup. The ETHYLATE has been of service as a caustic in cancer, lupus and nævus, for the latter affection being painted over the growth with a glass rod. CAUSTIC SODA is a better escharotic than caustic potassa, as it has less affinity for water, and hence does not destroy the tissues so deeply, nor has it the same tendency to run over adjacent parts.

The therapeutics of the other sodium salts are described as noted on the preceding page.

SOMNAL (Unofficial),—is the suggestive name given to a liquid preparation formed by the union of Chloral, Alcohol and Urethan, described as *Ethylirtes Chloral-urethan*, represented by the formula $C_7H_{12}Cl_3O_2N$, and claimed to be a complex body, not a simple mixture of its constituents. It occurs as a colorless liquid, resembling chloroform in its behavior with cold water, with which it forms globules and refuses to mix or dissolve. It is soluble in hot water, in alcoholic solutions, and in alcohol, 3 parts in 1. The advantage claimed for Somnal is that when administered in 20-grain doses it induces within half an hour a quiet sleep lasting from six to eight hours without any inconvenient after- or by-effects.

Doses of 45 and even 60 minims produced no depression of the circulation or respiration. In doses of ʒss its action is usually very prompt, the dose is well borne always, easily taken (in a little syrup of tolu or whiskey), and entirely without deleterious effect. The effects are much more striking and certain than those of Urethan, and far less depressing than those of Chloral; and there is no vertigo or depression, as may follow the use of Sulphonal. In drachm-doses, this drug is not powerful enough to decidedly control delirium tremens, maniacal delirium or severe pain. (Dr. Gilman Thompson.)

The sedative and somniferent action of Somnal is strikingly manifested in the insomnia of convalescence from acute disease, but where an adynamic condition exists it must be used with caution. In whooping-cough, spasmodic laryngitis, asthma, the so-called "nervous cough" and in chorea, it shows decided sedative properties. A great element of safety in its use is that its action is never out of proportion to the quantity ingested, nor does it act in a cumulative or other unexpected manner. It seems to have little or no influence over insomnia due to acute inflammation. (Dr. O. M. Myers.) It is injurious in acute mania and general paralysis, but is of great value in cases of melancholia, in which it promotes sleep and produces a soothing effect on the mental condition by removing depression and gloomy forebodings. It is contra-indicated when the digestion is out of order. (Dr. de Montyel.)

SPIGELIA, Pink-root,—is the rhizome and roots of *Spigelia marilandica*, the Carolina Pink, an herbaceous perennial of the nat. ord. Loganiaceæ, native of the southern states; having large, showy flowers, scarlet or crimson externally, yellow within. The rhizome is 2 inches long, ⅛ inch thick, horizontal, bent and branched; having cup-shaped scars above and numerous thin rootlets below. It contains a bitter principle and a volatile oil, also tannin, wax, resin, lignin and salts. Dose, ʒj–ij for an adult, gr. x–xx for a child of 3 years.

Preparations.

Extractum Spigeliæ Fluidum, *Fluid Extract of Spigelia.*—Dose for an adult, ʒj–ij; for a child of 3 years, ♏x–xx.

Infusum Spigeliæ Compositum, *Compound Infusion of Spigelia*, *Worm Tea* (Unofficial),—has of Spigelia 15, Senna 10, Fennel 10, Manna 30, Water 500. Dose, ℥iss–v.

Spigelia is anthelmintic against the round worm (Ascaris lumbricoides), and is in popular use as a vermifuge, administered usually with Senna. In large doses it is an uncertain cathartic, and may produce quite serious symptoms, as vertigo, dimness of vision, dilated pupils, spasms and even convulsions. These effects are most apt to occur when the drug fails to produce purgation, hence it is usually administered with an active cathartic.

Spigelia Anthelmia, *Demarara Pink-root* or *Worm-grass*, produces vomiting, dilated pupils, dyspnœa, convulsions, and death. If eaten by cattle they perish in great agony. It has been used with real benefit in cardiac affections of rheumatic origin, also in rheumatic fever, and in cardiac palpitation with dyspnœa, due to mitral and aortic disease. A tincture (1 to 8) may be used in doses of ♏v–xx.

STAPHISAGRIA, Stavesacre,—is the seed of *Delphinium Staphisagria*, an annual or biennial plant of the nat. ord. Ranunculaceæ, a native of Europe, having bluish or purple flowers, in terminal racemes; and seeds in straight, oblong capsules. The seeds contain an alkaloid *Delphinine*, probably 3 other alkaloids, a bitter principle, a volatile oil and a fixed oil, etc. There are no official preparations.

Unofficial Preparations.

Unguentum Staphisagriæ, *Ointment of Staphisagria*,—contains of the powdered seeds 1 part with 2 each of olive oil and lard.

Delphinina, *Delphinine*, $C_{22}H_{35}NO_6$,—is the active alkaloid, and exists in the fatty oil which is extracted by ether. Dose, gr. $\frac{1}{12}$–$\frac{1}{4}$.

Stavesacre is a violent emetic and cathartic, also parasiticide. The alkaloid is irritant to the skin if locally used, producing tingling, burning and inflammation. Internally, it lowers the activity of the heart and respiration and produces a most profound adynamia, and may prove fatal from paralysis of the spinal cord and asphyxia. In many respects its alkaloid resembles Aconitine and Veratrine.

The ointment is often employed as a parasiticide against pediculi and the acarus scabiei. The fixed oil is probably equally effective. Delphinine has been used internally in asthma, rheumatism and neuralgia, and in the latter affection is well employed as an ointment (gr. xx to ℥j), applied over the course of painful superficial nerves. It has been suggested as an antipyretic and for dropsy. A tincture or fluid extract is a very efficient application against pediculi.

STILLINGIA, Queen's Root,—is the root of *Stillingia sylvatica*, or Queen's Delight, an indigenous, perennial plant of the nat. ord. Euphorbiaceæ, with yellow flowers on a spike, and a large, thick and woody root, of peculiar and unpleasant odor, and an acrid, pungent, bitter taste. It contains a resin and a volatile oil, but its active principle has not yet been isolated. The fresh root should be used in making the preparations, as those from the dried root are almost inactive. Dose of the powdered root, gr. x–ʒj.

Preparations.

Extractum Stillingiæ Fluidum, *Fluid Extract of Stillingia.*—Dose, ♏x–ʒj.

Tinctura Stillingiæ, *Tincture of Stillingia* (Unofficial).—Dose, ʒss–ij.

Decoctum Stillingiæ, *Decoction of Stillingia* (Unofficial).—℥j ad Oj. Dose, ℥j–ij.

Syrupus Stillingiæ Compositus, *Compound Syrup of Stillingia* (Unofficial),—is composed of Stillingia, Corydalis, Iris, Chimaphila, Coriander, Xanthoxylum, Sambucus, Sugar, Water and Alcohol. For the formula, see U. S. Disp., 17th edition, page 1286.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Stillingia in large doses is emetic and cathartic, in smaller doses it is expectorant, diaphoretic, diuretic, sialagogue and cholagogue, possessing the various properties which are considered "alterative." Its taste is acrid and pungent, and it increases the action of the heart, skin, kidneys, and bronchial mucous membrane; and the gastric, hepatic, intestinal and salivary excretions. Full doses often excite epigastric pain, nausea and vomiting.

Stillingia is much employed with Sarsaparilla and similarly acting drugs as an alterative in syphilitic affections, particularly in chronic cases of the tertiary form, in which the system is greatly reduced by the abuse of mercurials and iodides. In these cases it possesses considerable power and frequently cures. It is also valuable in strumous affections, in ascites due to hepatic changes, portal changes with jaundice following malaria, habitual constipation, hemorrhoids from hepatic obstruction, and intermittents. In the latter affection the fluid extract with Quinine or Arsenic is a very useful combination. A strong decoction is used to ward off an impending paroxysm of ague. The compound syrup, notwithstanding its reputation as a model of polypharmaceutical skill, is largely used in the West and South.

STRAMONIUM, Thornapple.—The plant *Datura Stramonium*, Jamestown Weed or Thornapple (nat. ord. Solanaceæ), is official in two forms, the leaves and the seed. It is an annual, of rank and vigorous growth, having a green stem with large white flowers, and numerous seeds in a large, fleshy, four-celled capsule, open at the summit. It grows wild in Southern Russia and the middle United States, and contains an alkaloid, *Daturine* (see below), which is generally considered identical with Atropine both physiologically and chemically,—also malic acid, albumen, gum, resin, etc.

Stramonii Folia, *Stramonium Leaves,*—the leaves of *Datura Stramonium*, are about 6 inches long, smooth, petiolate, ovate, pointed, unequal at the base, coarsely toothed, of bitter and nauseous taste. Dose, gr. ij–xx.

Stramonii Semen, *Stramonium Seed,*—the seed of *Datura Stramonium*, is about ⅙ inch long, reniform, flattened, pitted and wrinkled, the testa blackish and hard, enclosing a curved embryo embedded in whitish, oily albumen ; of unpleasant odor when bruised and an oily, bitter taste. Dose, gr. j. The official preparations are all made from the seed.

Preparations.

Extractum Stramonii Seminis, *Extract of Stramonium Seed.*—Dose, gr. ⅙–½.

Extractum Stramonii Seminis Fluidum, *Fluid Extract of Stramonium Seed.*—Dose, ♏ j–v.

Tinctura Stramonii Seminis, *Tincture of Stramonium Seed,*—15 per cent. Dose, ♏ v–xxx.

Unguentum Stramonii, *Stramonium Ointment,*—has of the Extract 10, Diluted Alcohol 5, Benzoinated Lard 85.

Daturina, *Daturine*, $C_{17}H_{23}NO_3$ (Unofficial),—is the alkaloid found in all parts of the plant, also in Datura Tatula. It is a Tropate of Tropin, isomeric and identical with Atropine. Dose, gr. $\frac{1}{120}$–$\frac{1}{60}$.

PHYSIOLOGICAL ACTION.

The action of Stramonium is similar to that of Belladonna in almost every particular, except that Stramonium is more powerful and chiefly influences the sympathetic nervous system, not affecting the motor or sensory nerves. It excites a greater degree of cardiac irregularity and a more furious delirium, and seems to have a special affinity for the generative apparatus, being decidedly aphrodisiac in full doses. [Compare Belladonna, *ante*, 142.]

As previously stated the alkaloids, Atropine, Daturine, Hyoscyamine, and Duboisine are chemically alike and almost identical physiologically. They all produce dilatation of the pupil, increase the cardiac action, the pulse and respiration rate, and cause delirium. Poisoning by one of them is indistinguishable from that by another.

Antagonists and Incompatibles.

These are the same as for Belladonna. Poisoning by Stramonium is not uncommon, as children may eat the seeds, which should be evacuated by an emetic. If physiological symptoms follow *Opium* must be exhibited as the antagonist, but cautiously, lest opium-narcosis be substituted.

THERAPEUTICS.

Stramonium is chiefly used as an antispasmodic and to relieve pain. In asthma the leaves are smoked with advantage at the commencement of a paroxysm, the smoke being drawn into the lungs. In other spasmodic affections, as hepatic colic, laryngeal cough, chorea and stammering, it is very beneficial. In dysmenorrhœa and neuralgia it is used in combination with Opium and Hyoscyamus, and in tic douloureux and sciatica it is often very efficient. In nymphomania with great mental depression it is frequently effective, and in mania of furious character, particularly the puerperal form with suicidal tendency, it is highly serviceable in 10–20 minim doses of the tincture every 3 or 4 hours. The ointment is much used in irritable ulcers, and as an anodyne application in painful hemorrhoids and certain cutaneous diseases.

STRONTIUM, Sr.—The metal Strontium is represented in the pharmacopœia by three of its salts, viz.—

Strontii Bromidum, *Strontium Bromide*, $SrBr_2 + 6H_2O$,—colorless, transparent, hexagonal crystals, very deliquescent, of bitter, saline taste; very soluble in water and alcohol, insoluble in ether. Dose, gr. v–xxx.

Strontii Iodidum, *Strontium Iodide*, $SrI_2 + 6H_2O$,—hexagonal plates, colorless, transparent, of bitter, saline taste; very soluble in water, also in alcohol and slightly so in ether. Dose, gr. v–xxx.

Strontii Lactas, *Strontium Lactate*, $Sr(C_3H_5O_3)_2 + 3H_2O$,—a white, granular powder, or crystalline nodules, of slightly bitter and saline taste, permanent in the air; soluble in 4 of water, in less than ½ part of boiling water, also in alcohol. Dose, gr. v–xxx.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

The Strontium salts are among the most recent additions to the materia medica. Their marked anti-putrescent and antiseptic properties were first noticed in 1891 by Germain Sée, on patients suffering from gastric dilatation. He found that, in such cases, the Bromide prevented the acetic and lactic fermentations, and the formation of the gases of decomposition. The toxic action, hitherto attributed to the salts of Strontium, has been ascertained to be due to Barium, which was present in the impure commercial products used. When pure, they may be safely employed in the same doses, and in the same cases, as the corresponding preparations of potassium and sodium; than which they are much less liable to cause eruptions, and are more rapidly and completely eliminated by the kidneys.

The action of Strontium Iodide is analagous to that of potassium iodide, intravenous injections producing at first a rapid elevation of arterial pressure with acceleration of the cardiac rate; followed by slowing of the heart, and, later on, lowered blood-pressure with increased heart-rate. It has been used, with good results, in the treatment of scrofulous, rheumatoid and cardiac disorders; especially scrofuloderma, scrofulous otorrhœa, and enlarged lymphatic glands; also in lupus vulgaris and ozæna.

The Lactate has been successfully employed in diabetes, and in albuminuria. It diminishes the amount of albumen excreted in Bright's disease, in the parenchymatous nephritis of rheumatic and scrofulous subjects, and in the albuminuria of pregnancy; for which purpose it should be given in full doses, (gr. xxx) thrice daily. It is contraindicated when there is scanty urine or symptoms of uræmia.

The uses of Strontium Bromide are detailed with those of the Bromides, on page 152, *ante*.

STROPHANTHUS,—is the seed, deprived of its long awn, of *Strophanthus hispidus*, an African climbing plant (nat. ord. Apocynaceæ), from which the natives extract a toxic preparation known as the Kombé arrow-poison. It contains a crystalline glucoside, named *Strophanthin*, the active principle, which is bitter, slightly acid, soluble in water and in alcohol, but almost insoluble in ether, chloroform, benzin, etc. It is very plentiful in the seeds (8 to 10 per cent.), and is an agent of great energy, the frog being killed by a solution of 1 in 10,000,000. (Denian.)

Preparations.

Tinctura Strophanthi, *Tincture of Strophanthus*, (1 in 20).—Dose, ♏ v–x, or ♏ ½–ij frequently repeated. A stronger tincture (1 in 8) is on the market.

Strophanthinum, *Strophanthin* (Unofficial).—Dose, gr. $\frac{1}{120}$–$\frac{1}{60}$ hypodermically: gr. $\frac{1}{50}$ has been used, the influence of the one injection upon the circulation lasting at least 8 days.

PHYSIOLOGICAL ACTION.

Strophanthus acts primarily upon muscular tissue, by direct contact through the blood, and with great energy. It increases the contractile power of all striped muscle, and in poisonous quantity it fixes the muscular contraction into a condition of tetanic permanence, the muscle being unable to resume its normal condition of partial flexibility. As the heart receives much more blood in a given time than any other muscle in the body, it is quickly and markedly affected by the strophanthus-charged fluid, and by regulating the dosage, the cardiac muscle may alone be affected, by a quantity which would not influence the other muscles.

Small doses stimulate the cardiac contractions, increasing the force of the ventricular systole, and lowering the rate of the heart-beats. At the same time the general blood-pressure is raised, and diuresis produced, both being due to the *vis a tergo*,—the direct stimulation of the circulation from behind. Large doses paralyze the heart in systole, and leave the cardiac muscle in a state of contraction resembling cadaveric rigidity. It does not act through the nervous system, but paralyzes the muscular tissue, striated and non-striated, by direct contact;—and when contractility has been once destroyed thereby, no stimulus will re-excite it. It does not affect the vascular system directly.

Compared with Digitalis, then, we have in Strophanthus a powerful cardiac stimulant, differing from Digitalis in not producing vaso-motor constriction of the arterioles. It reduces the pulse, lowers body-temperature somewhat, is not cumulative in action, and does not cause any gastro-intestinal disturbance. It is diuretic, by direct stimulation of the renal circulation; and has power over rigors, by its rapid cardiac action, stopping them, and preventing their recurrence.

THERAPEUTICS.

Strophanthus is undoubtedly a valuable cardiac stimulant, from the rapidity and permanence of its action, as well as its non-interference with the calibre of the peripheral vessels. It promptly relieves cardiac dyspnœa, often modifies the pulse-rate in less than an hour, while the influence of a single dose upon the circulation persists for a long time. It may well replace Digitalis in the treatment of chronic Bright's disease and valvular lesions of the heart, when it is important that the work of the heart should not be increased by any additional resistance in the arterial system.

Strophanthus has been reported as exceedingly useful in the treatment of Bright's disease, for the dyspnœa, orthopnœa, dropsy and uræmia; also in mitral insufficiency, with great anasarca and dyspnœa; in palpitation, exaggerated cardiac action, and in weak heart, and for exophthalmos, with tumultuous action of the heart; also in pulmonary œdema, due to valvular lesions, or to pneumonia. It is useful in endocarditis, also in atheroma of the arteries; in reflex palpitation of neurasthenia, hysteria and chlorosis, and for rigors due to catheterization, or operations on the urethra. These high claims, made by enthusiastic therapeutists, have not been maintained by the experience of the general profession, so that this drug is gradually falling into disuse, although but recently added to the official pharmacopœia.

Ouabaïn, $C_{30}H_{46}O_{12}$ (Unofficial),—is a glucoside obtained from the root and wood of *Acocanthera Ouabaio*, an apocynaceous tree of the Somali coast; also from the seeds of *Strophanthus glabrus*, a climbing plant from Gaboon. The former furnishes an arrow poison, much used by the African natives. Ouabaïn occurs in white, odorless crystals, of feebly bitter taste; soluble in hot water and in spirit, slightly in cold water, insoluble in absolute alcohol, chloroform and anhydrous ether. Dose, gr. $\frac{1}{1000}$ every three hours, to children.

Ouabaïn is an extremely active poison, paralyzing the cardiac muscle by direct action. It is a powerful emetic, especially when given hypodermically; and a potent local anæsthetic, being considered by many observers as superior to Cocaine in this respect. In therapeutic doses it does not seem to affect the body temperature, but increases urination, either by stimulating the blood pressure or by paralyzing the sphincter vesicæ. It also promotes defecation, probably by stimulating peristalsis. Very small doses give some evidence of a possible action similar to that of Digitalis. It has been employed with striking benefit in all stages of pertussis; and has been used to some extent as a local anæsthetic for the eye.

STYRAX, Storax,—is a balsam prepared from the inner bark of *Liquidambar orientalis*, the Oriental Sweet-gum, a tree of the nat. ord. Hamamelaceæ, growing in Asia Minor. It is semi-liquid, sticky, opaque and gray-colored, of agreeable odor and balsamic taste, completely soluble (except accidental impurities) in an equal weight of warm alcohol. It consists of a volatile oil named *Styrol*, C_8H_8,—a crystalline solid *Styracin*, which is a cinnamate of cinnamic ether,—two peculiar resins, one hard, the other soft,—and *Cinnamic Acid*, $C_9H_9O_2$, a colorless, odorless, crystalline body, closely allied to Benzoic Acid, excreted in the urine partly as Hippuric Acid, and occurs also in the Balsams of Peru and Tolu. Dose of Storax, gr. v–xx.

Tinctura Benzoini Composita, *Compound Tincture of Benzoin, Friar's Balsam,* —contains 8 per cent. of Storax. Dose, ʒss-ij.

Storax is a stimulant expectorant, an antiseptic and a disinfectant, acting both locally and remotely, like Benzoin and the Balsams of Tolu and Peru. It is used with benefit in chronic bronchitis and other affections of the respiratory organs, also in chronic catarrhs of the genito-urinary passages, in gonorrhœa and in amenorrhœa. Externally it is employed in ointment as a detergent for foul ulcers, and as a parasiticide for scabies and phthiriasis.

SUCCINUM, Amber (Unofficial),—the source of Oil of Amber, is a fossil resin, occurring in alluvial deposits, chiefly in Prussia, Bohemia, and Courland. It is usually associated with lignite, sometimes encloses insects and parts of vegetables, and consists of a volatile oil, a yellow resin, another resin, succinic acid and a bituminous principle. Its source is thought to be an extinct coniferous tree, the *Pinites succinifer*, of which amber represents the exudation.

Oleum Succini, *Oil of Amber* (Unofficial),—is a volatile oil obtained by the destructive distillation of Amber, and purified by subsequent rectification;—a colorless or pale yellow, thin liquid, of sp. gr. about 0.920, of empyreumatic and balsamic odor, a warm, acrid taste, and a neutral or faintly acrid reaction, and readily soluble in alcohol. Dose, gtt. v–x.

Oil of Amber is stimulant, antispasmodic and diuretic, when used internally. Externally it is irritant and rubefacient. It has been employed with benefit in epilepsy, hysteria, convulsions, amenorrhœa, whooping-cough, etc. As a liniment it is often used in chronic rheumatism, and has been applied along the spine in infantile convulsions, mixed with an equal part of laudanum and diluted with olive oil or brandy.

SULPHONAL, Sulphonal, *Diethylsulphon-dimethyl-methane,* $C_7H_{16}S_2O_4$ (Unofficial),—is a synthetical hypnotic which has recently been admitted to an official place in the pharmacopœias of several countries, though unofficial as yet in the United States. It is produced by the interaction of anhydrous *Mercaptan* (Ethyl Hydrosulphide) and anhydrous *Acetone*, in the presence of a stream of dry HCl. The resulting *Mercaptol* is separated, washed and oxidized by potassium permanganate; yielding Sulphonal in colorless, prismatic crystals, soluble in

15 of boiling water, in about 450 of cold water, and in about 50 of cold alcohol; very soluble in boiling alcohol and in ether. Sulphonal is a very stable body, being unaffected by concentrated acids, alkalies, or oxidizing agents, cold or warm. Dose, gr. xv–xl.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Sulphonal was introduced about five years ago as a harmless hypnotic, producing sound and quiet sleep without unpleasant after effects, without intoxicant or narcotic action, and having no unfavorable effects on the heart or circulation, even in full doses. It rapidly came into general use as a hypnotic in mental diseases, in nervous insomnia, and in sleeplessness from various causes. Recently a number of competent observers have recorded instances of toxic action following its use, and opinions are now greatly divided as to its therapeutical value. If it were not for the very evident advantage of the drug when used with care, and under medical supervision, it would stand a very fair chance of being either excluded from practice or restricted by legislative authority. (Squibb.) In many cases of serious poisoning thereby death has followed; and its prolonged use may give rise to such minor toxic effects as noises in the ears, headache, vertigo, weakness and incapacity for mental or physical exertion. The patient may next pass into a condition of drowsiness or stupor, or he may suffer from difficulty of speech; and ptosis, œdema of the eyelids and cyanosis may be experienced. The stopping of the drug in subjects of sulphonism is followed by vertigo, motor disturbances, general weakness, digestive troubles, etc., a condition resembling that in morphinism when the morphine is suddenly cut off. (Lépine.) In one reported case a dose of 20 grains nightly for 15 months was accompanied by complete cessation of menstruation. It has produced persistent skin eruptions in some cases, and severe functional disturbances in others. The chief characteristics of chronic poisoning by this drug are as follows:—disturbances of digestion, shown by vomiting and diarrhœa or constipation; disturbances of the nervous system, as ataxy and feebleness of the limbs, ptosis and ascending paralysis; also ischuria and oliguria, sometimes albuminuria, or the presence of hæmatoporphyrin. (Karst.) Recovery rapidly follows if the entire alimentary tract be thoroughly purged; and as long as this is kept free, and the kidneys act efficiently and normally, the drug may be considered harmless. (Fuerst.) In order to secure elimination and to guard against cumulative action and consequent toxicity, its administration should be interrupted from time to time. Anorexia, vomiting, or pains in the stomach may be regarded as indications for immediate discontinuance. (Kast.)

As a hypnotic Sulphonal acts admirably in many instances, if administered in hot fluids and about two hours before its action is required; but its efficacy decreases with use, and it is of no value whatever against insomnia due to pain. The average hypnotic dose is about 20 grains for a woman and 30 grains for a man. The dose is to be administered only once daily, and should be discontinued at the first sign of toxic action. In no case should its administration be continued over any great length of time. In cases of insomnia due to neuralgia and nervous excitement, the dose of Sulphonal may be advantageously combined with a small dose of Morphine, in proportion to suit individual cases, the mixture forming a safe and efficient hypnotic. (Gonzales.)

Trional, *Diethylsulphon-methyl-ethyl-methane*,—differs from Sulphonal only in the substitution of an ethyl for a methyl group. It occurs in lustrous, bitter, tabular crystals, soluble in 320 of cold water, readily soluble in alcohol and in ether. It is an efficient hypnotic, less liable to produce ill effects than Sulphonal, but must be given in doses fully as large, gr. xv–xl. It is said to be peculiarly valuable in cases of slight psychical excitement accompanied by obstinate insomnia, and to act promptly and usefully in many forms of delirium. When pain is present it may be administered in conjunction with Phenacetin or Acetanilid. A potent objection to its use is the fact that it is patented in this country, which is also true of the following agent.

Tetronal, *Diethylsulphon-diethyl-methane*,—contains 4 ethyl groups, to 3 in Trional, and but 2 in Sulphonal. Dr. Lauder Brunton holds of the physiological action of the disulphones, to which group these three substances belong, that only those containing ethyl groups are active, and that the hypnotic activity is increased with the number of such groups. This, if substantiated in practice, would make Tetronal the most powerful hypnotic of the three. Trional is found to be, generally, more active, however, in this respect, and to be freer from unpleasant by-effects, Tetronal producing vomiting and other digestive disturbances in many cases. Neither of them has any value against insomnia due to pain. Dose, gr. xx–xxx, twice or thrice daily.

SULPHUR, and SULPHIDES.—The non-metallic element Sulphur, S, is a brittle solid of a pale yellow color, permanent in the air, of crystalline texture and susceptible of several allotropic states, which are for the most part induced by heat. It is obtained native in several volcanic districts, or from the native Sulphides of Iron and Copper (iron and copper pyrites) by roasting, as it sublimes at about 238° F. It is official in three forms, viz. :—

Sulphur Sublimatum, *Sublimed Sulphur*, S,—is prepared from crude Sulphur by sublimation and condensation. It is a fine citron-yellow powder, of faintly acid taste and acid reaction, insoluble in water or alcohol. Ignited it burns with a blue flame, forming sulphurous acid gas, and leaving no residue or only a trace. Dose, gr. x–xx–lx.

Sulphur Lotum, *Washed Sulphur*, S,—prepared by digesting sublimed Sulphur with dilute Water of Ammonia, thoroughly washing with water and passing through a No. 30 sieve. In this process the Ammonia dissolves out any Sulphide of Arsenic which may be present and neutralizes any Sulphurous or Sulphuric Acid. [For solubility and dose see S. PRÆCIPITATUM, below.]

Sulphur Præcipitatum, *Precipitated Sulphur* (*Lac Sulphuris*, *Milk* *of Sulphur*), S,—is prepared by boiling sublimed Sulphur with slaked lime and water, thus forming the Sulphide and Hyposulphite of Calcium. These are then decomposed by HCl, and Sulphur is precipitated as a very fine powder which is next washed until the washings are tasteless, and it is dried with a gentle heat. The result is a very fine, yellowish-white, amorphous powder, odorless and almost tasteless, insoluble in water or alcohol, but completely soluble in carbon disulphide or a boiling solution of soda. By heat it is completely volatilized. Dose, gr.x–ʒj.

Preparations of Sulphur.

Unguentum Sulphuris, *Sulphur Ointment*,—has of Sublimed Sulphur 30, Benzoinated Lard 70, rubbed together until thoroughly mixed.

Pulvis Glycyrrhizæ Compositus, *Compound Liquorice Powder* (see under GLYCYRRHIZA),—contains 8 per cent. of Washed Sulphur.

Sulphurous Acid and the **Sulphites** are described under ACIDUM SULPHUROSUM; the **Sulphates** under the titles of their respective bases. For **Sulphuric Acid** see ACIDUM SULPHURICUM.

Sulphur Iodide and Sulphides.

Sulphuris Iodidum, *Sulphur Iodide*, (*Iodine Disulphide*), I_2S_2,—is prepared by fusing together Washed Sulphur 1 part, and Iodine 4. It is a grayish-black crystalline solid, having the odor of iodine, an acrid taste and a faintly acid reaction, insoluble in water, but very soluble in disulphide of carbon and in about 60 of glycerin. Alcohol and ether dissolve out the iodine, leaving the sulphur. Only used as ointment, gr. xxx to the ℥.

Calx Sulphurata, *Sulphurated Lime*, (*Crude Calcium Sulphide*),—is a mixture of Calcium Monosulphide, CaS, Calcium Sulphate, $CaSO_4$, and Carbon, in varying proportions, containing at least 60 per cent. of the former. A pale, gray powder, of offensive taste and smell, and alkaline reaction, insoluble in alcohol, very slightly soluble in water. Dose, gr. $\frac{1}{10}$–$\frac{1}{2}$.

Calcii Sulphidum, *Calcium Sulphide*, CaS (Unofficial),—a constituent of the preceding, is named *Hepar Sulphuris*, *Liver of Sulphur*, by the homœopathists, who prepare it by mixing equal parts of powdered oyster-shell and sublimed sulphur, and heating at a white heat in a crucible hermetically sealed. Dose, gr. $\frac{1}{10}$–$\frac{1}{2}$.

Potassa Sulphurata, *Sulphurated Potassa*, (*Liver of Sulphur*),—is a mixture of Potassium Trisulphide with small quantities of Potassium Hyposulphite and Potassium Sulphate; prepared by heating together Sublimed Sulphur 1, Potassium Carbonate 2, in a covered crucible until melted. Occurs in irregular pieces, of liver-brown color, gradually changing with age to a greenish- or brownish-yellow, of disagreeable odor, alkaline reaction, and alkaline, repulsive taste. Soluble in 2 of water, except a small residue. Alcohol dissolves only the potassium sulphide, leaving the other constituents undissolved. Dose, gr. ij–x, in pill or solution.

Hydrogenii Sulphidum, *Hydrogen Sulphide*, *Sulphuretted Hydrogen*, H_2S,—is used only for test purposes; a saturated, aqueous solution being one of the official reagents. It is a colorless gas, having the smell of rotten eggs; and is prepared by the action of dilute sulphuric acid on iron sulphide, the resulting gas being passed into water, a solution is obtained. It precipitates most of the metals from acid solutions as sulphides; that with Arsenic being yellow,—with Antimony, orange,—with Cadmium, yellow,—with Copper, Lead, Mercury and Silver, black,—with Bismuth, brown,—with Gold and Platinum, brownish-black.

Carbon Disulphide is described under CARBO; **Antimony Sulphide** and **Sulphurated Antimony** under ANTIMONIUM.

Unofficial Allied Compounds.

Ichthyolum, *Ichthyol*, *Ammonium Sulpho-ichthyolate*, $C_{28}H_{36}S_3O_6(NH_4)_2$—is prepared from the product of the distillation of bituminous rocks from the Tyrol, which contain fossil fishes. It occurs as a viscous, reddish brown mass, of tarry odor and appearance, and feebly alkaline reaction; soluble in water and in a mixture of alcohol and ether; mixes in all proportions with glycerin, fats and oils. It contains a large proportion of Sulphur, about 10 per cent. Dose, internally, gr. v–xxx. **Sulpho-ichthyolates** of Lithium, Sodium and Zinc are also prepared, and are on the market.

Thiolum, *Thiol*,—is prepared by the sulphuration of certain nonsaturated hydrocarbons, and is a product very similar to Ichthyol. It occurs in both dry and liquid form, the former, *Thiolum siccum*, as dark-brown lamellæ or powder, of bituminous odor, and bitter, astringent taste; soluble in water and in chloroform, sparingly in alcohol, insoluble in ether and in benzin. The liquid form, *Thiolum liquidum*, is a dark-colored, syrupy fluid, miscible in all proportions with water. Dose, internally, gr. v–xxx.

Tumenolum, *Tumenol*,—is obtained by treating the unsaturated hydrocarbons of mineral oils with concentrated sulphuric acid. It occurs in several forms, solid and fluid, that known as *Commercial Tumenol* being considered the most generally useful. It is a dark-brown fluid, which can be employed in ointment and in tincture, externally.

Physiological Action.

SULPHUR is a mild laxative and a diaphoretic. In contact with living protoplasm it enters into combination and produces either sulphuretted hydrogen or sulphurous acid; taken into the intestinal canal a large portion passes out unchanged, some of it being converted by the alkaline bile into sulphuretted hydrogen and sulphides. The former is excreted by the lungs, giving to the breath the smell of rotten eggs, and by the skin, discoloring silver articles carried about the person by forming a sulphide of silver. The SULPHIDES are partly absorbed into the blood, and are excreted in the urine, chiefly as sulphates, and in the fæces, which they blacken and render soft. Given in full doses they are irritant to the stomach and intestines, extremely nauseous to the taste and smell, increase the secretions of the intestinal glands, also peristaltic action, and if used for any length of time they impair the blood, causing anæmia, emaciation, tremor and great debility.

SULPHURETTED HYDROGEN is very destructive to plant life, and in animals it destroys the tissue functions, decomposing the blood and paralyzing the nervous and muscular systems. The symptoms of poisoning are those of asphyxia; muscular tremors occur and are followed by convulsions and death. This gas is often found in cesspools in large quantities, but in one case poisoning occurred from its excessive formation in the intestines and subsequent absorption into the blood.

CALX SULPHURATA and POTASSA SULPHURATA act like the sulphides as local irritants and in large doses as irritant poisons, producing narcotic symptoms and convulsions. In small doses they act like sulphur and are supposed by many observers to have a peculiar influence on suppuration, to limit or prevent it if given in small doses frequently repeated.

The IODIDE is believed to possess some of the properties of both its elements. It is doubtful whether it is a distinct chemical compound or merely a physical mixture. As a parasiticide it is very efficient, and has been found remarkably alterative in many local affections of chronic character, but may prove very irritant to the skin if improperly prepared.

The action of Sulphuric Acid, Sulphurous Acid and the Sulphites are respectively described on pages 72 and 80, *ante*.

Antagonists and Incompatibles.

Solutions of the Sulphides are decomposed by the mineral acids and by solutions of metallic salts. Antidotes are Chlorine-water, Chlorides of Sodium and Potassium, Sulphate of Iron, etc. Poisoning by Sulphuretted Hydrogen is best treated by artificial respiration.

THERAPEUTICS.

SULPHUR is chiefly used as a laxative when pultaceous rather than liquid stools are required, as in hemorrhoids and anal fissure, also in constipation. Scabies has long been treated by its local and internal use, but sulphur alone does not kill the itch insect. The older sulphur ointments were made with sublimed sulphur, and probably contained a considerable amount of sulphurous acid on which their parasiticide property depended. The recent ointments, made with purified sulphur, all contain an alkaline ingredient and develop sulphides which are powerful insect poisons. Sulphur fumigations are practically applications of volatile sulphurous acid, while most of the sulphur baths and mineral waters are solutions of sulphuretted hydrogen or of the alkaline sulphides. They are of value in lead poisoning to favor the elimination of that metal, in chronic constipation, chronic rheumatism and sciatica, and many skin diseases, especially chronic psoriasis, eczema, pityriasis and prurigo. The Ointment and the Alkaline Ointment are both used in scabies.

The IODIDE has been used internally in scrofula, glanders and cutaneous disorders, but it is chiefly employed as an ointment in lupus and parasitic skin diseases, especially herpes circinatus.

CALX SULPHURATA is extremely efficient as an internal remedy in crops of boils, scrofulous sores, glandular enlargements, acne, etc., and will prevent or limit suppuration. For these purposes it must be used in small doses (gr. $\frac{1}{10}$) frequently repeated. POTASSA SULPHURATA is only used externally as baths or ointment in skin diseases and mucous discharges, also in chronic rheumatism.

ICHTHYOL was introduced about ten years ago, by Dr. Unna, the celebrated dermatologist, as a promptly efficient remedy in certain chronic skin diseases, particularly eczema and psoriasis. It mixes with vaselin, lard and oils, is soluble in a mixture of ether and alcohol, and is not irritant locally, even if covered with oiled silk.

In one case of eczema infantile, an ointment was applied containing 1 part of Ichthyol to 5 of Vaselin, resulting in the child sinking into a stupor which lasted for 12 hours. A fatal case of poisoning thereby is reported by Bergerio, of Turin, in a woman whose uterus had been curetted the day previous. After the washing out of the uterine cavity with a solution of Ichthyol 33 to Glycerin 66, she complained of a putrid fish taste in her mouth, her pulse became like that in tachycardia, and symptoms of general depression rapidly supervened, ending in death after about 12 hours. These instances show that this agent is not devoid of danger, and that care must be exercised in its employment.

The particular value of Ichthyol, as a local remedy, is due to its non-irritant quality and to the large proportion of sulphur contained therein; which, in any pharmaceutical combination, would excite a dermatitis. Its application in medicine depends chiefly upon its reducing property, its antiseptic powers, and its contractile action upon the vascular system. Most of the affections for which it has been recommended are caused by anomalous circulation, and especially capillary dilatation. Used internally, it retards the disintegration of albumens and favors their formation and accumulation. Upon exudations it has a remarkable effect, given internally at the same time as applied externally, promoting their reabsorption and promptly alleviating pain. For these purposes it has been highly praised in gynecology, and even in pleurisy. For chronic rheumatism a 50 per cent. ointment is used locally and the remedy is also given internally. It has done excellent service in erysipelas, and ulcers of the leg, locally applied in ointment form with Lanolin, or pure; and internally in various affections of the digestive and intestinal tract, also in syphilis and leprosy. In gynecology it is combined with Glycerin (1 in 10); is used for rheumatism with Turpentine as a liniment, or with an equal weight of a mixture of Lanolin and Olive Oil and 30 per cent. of Chloroform; against erysipelas as a 10 to 20 per cent. collodion, with or without Castor Oil.

Thiol, the German artificial Ichthyol, is largely used in place of Ichthyol, by gynecologists and dermatologists. It causes no pain, burning, or other irritation, and no bleeding from eroded surfaces; promotes rapid absorption of effusions, and has many advantages over the natural Ichthyol, among which is the ease with which the stains it produces on linen may be removed. The dry form, used as a dusting powder, is of especial service in erysipelas, and is employed with benefit in eczema, erythema, intertrigo, impetigo, pemphigus and other cutaneous affections; especially in acute, moist inflammations of the skin and subjacent tissues, in chilblains, periphlebitis, contusions, subcutaneous hemorrhages and syphilitic ulcers. It is also an efficient application in pelvic exudations and endometritis. It may be applied as a powder, or collodion, in aqueous or glycerin solutions, as ointment, soap, plaster, etc. Internally, it is given in wine, or chocolate (1 to 2 per cent.), also in pills containing a grain each. Mixed with Talc, in the proportion of 10 to 20 per cent. of Thiol, it makes an excellent dusting powder for use on babies' skin.

Tumenol is said to owe its therapeutic action to its powerful reducing property rather than to the sulphur in its composition. The tincture has been almost universally successful in all forms of pruritus. Moist eczema is especially benefited by it, and it generally gives good results when employed in erosions, excoriations and superficial ulcerations. It is not anti-parasitic in action, and is of no service in erysipelas.

SUMBUL,—is the root of *Ferula Sumbul*, a very large plant of the nat. ord. Umbelliferæ, which grows to the height of 8 feet in the mountains of Northern Asia. The root occurs in transverse segments of a strong and musk-like odor and a bitter, balsamic taste, and contains *Angelic Acid*, $C_5H_8O_2$. *Valerianic Acid*, $C_5H_{10}O_2$, also a volatile oil, two balsamic resins, a bitter substance, etc. Dose, gr. xxx–ʒj or more, in infusion, decoction, etc.

Tinctura Sumbul, *Tincture of Sumbul*,—10 per cent. Dose, ʒj–iv.

Sumbul is an efficient nerve tonic, having qualities closely resembling musk and valerian. It is used by the Russian physicians in very many morbid conditions, and seems to be a favorite remedy in that country for almost any disease. It is probably of some value in hysteria and other nervous derangements of delicate females, and may be used as a substitute for musk in typhoid conditions and fevers, asthma, delirium tremens and perhaps in epilepsy.

TABACUM, Tobacco,—the commercial dried leaves of *Nicotiana Tabacum*, an annual plant of the nat. ord. Solanaceæ, native of tropical America, but cultivated in several parts of the world, especially in Cuba and Virginia. The leaves are large, as long as 20 inches, mottled-brown, ovate or lanceolate, glandular-hairy; having a heavy, peculiar odor, and a nauseous, bitter and acrid taste. It contains a very powerful and poisonous fluid alkaloid named *Nicotine*, $C_{10}H_{14}N_2$, also a concrete, camphoraceous, volatile oil, *Nicotianin*, besides alkaline salts (nitrates, phosphates), and other less important substances. Its combustion gives rise to several empyreumatic products, of which *Pyridine*, C_5H_5N, and its compounds are the chief, having somewhat the same action as Nicotine, but of less severity. Besides these products, tobacco-smoke contains Creosote, Hydrocyanic and Hydrosulphurous acids, etc., but little or no Nicotine.

Unofficial Preparations.

Enema Tabaci, *Enema of Tobacco*,—gr. xx infused in ℥ viij Boiling Water, and administered as one enema.

Vinum Tabaci, *Wine of Tobacco*,—℥j to the pint. Dose, ♏v-ʒj.

Oleum Tabaci, *Oil of Tobacco*,—is an empyreumatic product, obtained by distillation at a temperature above that of boiling water, and a most virulent poison.

Nicotina, *Nicotine*, $C_{10}H_{14}N_2$,—the alkaloid and active principle; a colorless, oily looking fluid, having the odor of tobacco and an acrid taste; readily soluble in water, and forming soluble salts with acids. Dose, ♏$\frac{1}{20}$–$\frac{1}{10}$ in strychnine-poisoning, up to ♏ij in 2 hours.

[Other Liquid Alkaloids besides Nicotine are—Coniine, Muscarine, Sparteine, Lobeline, Lupuline, and Pyridine.]

PHYSIOLOGICAL ACTION.

Tobacco is a very depressant nauseant, an emetic by irritant as well as by systemic action, and an antispasmodic; also sternutatory, diuretic, diaphoretic, cathartic, sedative and narcotic. It paralyzes the motor nervous system, its action commencing at the periphery and extending towards the spinal cord. It increases the salivary and intestinal secretions, and produces diuresis, tremor, clonic spasms and a tetanic stage followed by paresis. It contracts the pupils, depresses the heart, lowers arterial tension, reduces body-temperature, and causes profuse sweating, cold and clammy skin, collapse and death usually by paralysis of respiration, sometimes by paralysis of the heart. It does not impair the muscular irritability, nor does it act upon the cerebrum directly. Its empyreumatic products act similarly but less powerfully. Fatal results have followed on the inhalation of its vapor into the lungs.

NICOTINE is almost as rapidly fatal as Hydrocyanic Acid, death having occurred from a toxic dose in three minutes, with no symptoms except a wild stare and a deep sigh.

The continued use of Tobacco in excess by smoking or chewing produces granular inflammation of the fauces and pharynx, atrophy of the retina, dyspepsia, lowered sexual power, nervous depression, and occasionally angina pectoris. Used by the young it hinders the development of the higher nerve centres, and impairs the body nutrition by interfering with the processes of digestion and assimilation.

Antidotes and Antagonists.

Strychnine is the true physiological antagonist to Nicotine (or Tobacco) and *vice versâ*. Alcohol, Ammonia, Ergot, Digitalis, Belladonna, etc., antagonize its action on the circulation. In poisoning by Tobacco the means resorted to are evacuation of the stomach, Tannin, Iodides, and artificial respiration. A curious synergism has been observed by the author between Opium and Tobacco. If a person, habituated to the use of the latter, either by smoking or chewing, begins to use Morphine, the smallest quantity of Tobacco will make him sick, the symptoms being those experienced by a novice in its use. For the depression due to excessive smoking, the best agent is Spiritus Ætheris Compositus (Hoffman's Anodyne).

THERAPEUTICS.

Tobacco is now but little used in medicine; the dangers attending its employment either internally or externally have caused it to be superseded by less violently acting agents. The principal objects for which it is used are to relax spasm of the intestines, and to relieve local pain therein. Intestinal affections, like impaction of the cæcum, intussusception and strangulated hernia, may be overcome by a tobacco-enema to relax spasm, but it is a dangerous expedient. In dropsy, especially the renal form, it makes a very efficient diuretic. In tetanus there is no more effective remedy than minim doses of the alkaloid every two hours by the stomach, or ♏ ij by the rectum, or better still the wine in 10-minim doses repeated for effect. Strychnine-poisoning is best met by minute doses of Nicotine (gr. $\frac{1}{24}$) hypodermically, as a physiological antagonist. It may be employed with advantage in habitual constipation, for the dyspnœa of spasmodic asthma and emphysema, and in nymphomania and chordee.

The use of Tobacco in moderation, when under excessive exertion, aids in supporting the system and lessening the sense of fatigue. Smokers rarely suffer from constipation, but generally experience an immediate laxative result from their morning cigar.

TAMARINDUS, **Tamarind**,—is the preserved pulp of the fruit of *Tamarindus indica*, a large tree of the nat. ord. Leguminosæ, native in the East and West Indies. It occurs as a reddish-brown, sweet-acid and pulpy mass, containing strong, branching fibres and brown, quadrangular seeds, each enclosed in a tough membrane. It contains citric, tartaric and malic acids, sugar, gum, potassium bitartrate, etc.

Confectio Sennæ, *Confection of Senna*,—contains Tamarind to the amount of 10 per cent. Dose, ʒj–ij. (See under SENNA.)

Tamarind is a laxative and refrigerant fruit. In infusion it may be used by convalescents as a pleasant acidulous drink, or the pulp may be boiled with milk as a whey for the same purpose. As a laxative it is usually prescribed in connection with other agents having the same action.

TANACETUM, Tansy,—the leaves and tops of *Tanacetum vulgare*, a perennial, herbaceous plant of the nat. ord. Compositæ, having yellow flowers in dense terminal corymbs, indigenous in Europe, but cultivated in our gardens, and growing wild in roads and old fields. It contains a volatile oil, a bitter principle named *Tanacetin*, a tannic acid, etc. There are no official preparations, but a fluid extract may be prepared according to the general rule and administered in doses of ♏ x–ʒj. The dose of the volatile oil (Oleum Tanaceti) is 1 to 3 drops. An infusion (Tansy Tea) may be made in the proportion of ℥j to the pint, and used in doses of ℥j–ij.

Tansy is emmenagogue, diuretic and anthelmintic, an aromatic bitter and an irritant narcotic. Fatal results have frequently followed upon overdoses of the oil (℥ss–j) or strong decoctions, preceded by clonic spasms, disturbed respiration and cessation of the heart's action. It is a useful remedy in amenorrhœa, but is in popular repute as an abortifacient, a virtue which it does not possess except in quantity dangerous to life.

TARAXACUM, Dandelion,—is the root, gathered in autumn, of *Taraxacum officinale*, an herbaceous plant of the nat. ord. Compositæ, with a perennial fusiform root, long, sinuate-toothed or runcinate leaves, and slender peduncles, each bearing a single head of yellow flowers. All parts of the plant contain a bitter, milky juice, exuding from any break or wound. Its constituents are a bitter amorphous principle named *Taraxacin*, a crystalline principle *Taraxacerin*, with potassium and calcium salts, Inulin, and resinoid bodies, etc. The French name for the plant is "Pissenlit."

Extractum Taraxaci, *Extract of Taraxacum.*—Dose, gr. v–xxx.

Extractum Taraxaci Fluidum, *Fluid Extract of Taraxacum.*—Dose, ʒj–℥j.

Taraxacum is a bitter tonic, a diuretic and an aperient. It has been supposed to act especially on the liver, and is chiefly used in dyspepsia with hepatic torpor. As found in the shops it is usually inert. The extract is probably only of value as an excipient for pills.

TEREBINTHINA.—A Turpentine means a vegetable exudation, liquid or concrete, consisting of resin combined with a peculiar essential oil named *Oil of Turpentine* ($C_{10}H_{16}$), and generally procured from various species of the nat. ord. Coniferæ (cone-bearers). Of the many turpentines two only are official, viz.:—

Terebinthina, *Turpentine*,—a concrete oleoresin obtained from *Pinus palustris*, the Yellow Pine, and from other species of *Pinus*, nat. ord. Coniferæ. Occurs in tough, yellowish masses, brittle when cold, crummy-crystalline interiorly, of terebinthinate odor and taste. Dose, gr. v–xxx as a stimulant, antispasmodic or diuretic; ʒij–iv as an anthelmintic.

Terebinthina Canadensis, *Canada Turpentine* (*Balsam of Fir*),—a liquid oleoresin obtained from *Abies balsamea*, the Silver Fir, or Balm of Gilead, a tree of the nat. ord. Coniferæ. A yellowish, transparent, viscid liquid, of agreeable, terebinthinate odor, and a bitterish and slightly acrid taste, slowly drying on exposure, forming a transparent mass; completely soluble in ether, chloroform or benzol. Dose, gr. x–xxx.

PITCH and its preparations are described under PIX.

Official Preparations of Turpentine.

Oleum Terebinthinæ, *Oil of Turpentine*, commonly called "Spirit" or "Spirits of Turpentine,"—is a volatile oil distilled from Turpentine. A thin, colorless liquid, of characteristic odor and taste; sp. gr. 0.855 to 0.870; soluble in 3 times its volume of alcohol; mixes with other volatile and fixed oils, and dissolves resins, wax, sulphur, phosphorus and iodine. Bromine and powdered Iodine act violently on it, and when brought into contact with a mixture of Nitric and Sulphuric Acids it takes fire. It is isomeric with a number of volatile oils, has the formula $C_{10}H_{16}$—but constantly absorbs oxygen from the air when exposed, becoming thicker and less active, from formation of resin. It is a mixture of several hydrocarbons, each having the same formula as itself, viz.:—$C_{10}H_{16}$.

Oleum Terebinthinæ Rectificatum, *Rectified Oil of Turpentine*,—prepared by shaking Oil of Turpentine with 6 times its volume of Lime Water, distilling three-fourths, and separating. This preparation should always be dispensed when Oil of Turpentine is required for internal use. Dose, as a stimulant or diuretic, ♏ v–xv, in emulsion, 3 to 6 times daily;—as a cathartic or anthelmintic ℥ ss or more, combined with other cathartics. A little glycerin and Oil of Gaultheria will disguise the taste.

Linimentum Terebinthinæ, *Turpentine Liniment*,—has 35 parts of the oil with 65 of Resin Cerate.

Unofficial Turpentines.

Chian Turpentine,—from the *Pistaceæ Terebinthus*, a small larch tree growing in the islands of Chio and Cyprus, a thick, tenacious, greenish-yellow liquid, concreting on exposure to the air into a translucent solid. Dose, gr. iij–v in emulsion.

Venice Turpentine,—procured in Switzerland from the *Larix Europæa* or European Larch;—a viscid liquid of the consistence of honey, does not concrete on exposure, and is entirely soluble in alcohol. The Venice Turpentine of commerce is usually prepared by dissolving Resin in Oil of Turpentine.

Thus Americanum, *Common Frankincense* (B. P.),—the concrete turpentine which is scraped off the trunks of *Pinus australis* and *Pinus Tæda*, Southern States of N. America. An ingredient of the Emplastrum Picis of the B. P.

Derivatives of Turpentine.

Resina, *Resin* (*Colophony*),—is the residue left after distilling off the volatile oil from turpentine; the portion of turpentine which is fixed by oxidation; consisting in greater part of *Abietic anhydride* ($C_{44}H_{62}O_4$). See *ante*, under its own title.

Terebenum, *Terebene*, $C_{10}H_{16}$,—is a hydrocarbon obtained by the oxidation of Oil of Turpentine by strong Sulphuric Acid, and occurs as a colorless, or light yellow liquid, with the pleasant odor of newly cut pine wood; practically insoluble in water, but may be emulsified, soluble in an equal volume of alcohol. It consists chiefly of *Pinene*, and should contain not more than very small proportions of Terpinene and Dipentene (U. S. P.); [consists of Camphene, Cymene, Borneol and Terpilene (Squibb)]. Dose, ♏ v–xx on sugar, or suspended in ℥ ss of water by the aid of gr. xx of light magnesium carbonate.

Terpini Hydras, *Terpin Hydrate*, $C_{10}H_{18}(OH)_2.H_2O$,—is the hydrate of the diatomic alcohol Terpin (Terebinthene), obtained by distilling oil of Turpentine with an alkali. Colorless, lustrous, rhombic prisms, nearly odorless, of slightly aromatic and somewhat bitter taste; soluble in 10 of alcohol and in about 250 of water at 59° F., in 32 of boiling water and in 2 of boiling alcohol. Dose, gr. v–x.

Terpinol (Unofficial),—an oily body obtained from the preceding, by the action of an acid thereon. Dose, gr. ij–v.

Sanitas Disinfecting Fluid (Unofficial),—is an aqueous solution of turpentine which has been oxidized by exposure to the air. It contains Hydrogen Dioxide, Thymol, Camphor and Camphoric Acid, the latter in such small proportion, however, that its action cannot be expected. This proprietary preparation has many combined advantages. It is a good oxidizing agent and antiseptic, is not poisonous, and does not stain the linen, —qualities which strongly recommend it as an external disinfectant, and for use in surgical operations.

Unofficial Analogues of Turpentine.

Oleum Succini, *Oil of Amber*,—a volatile oil obtained by the destructive distillation of Amber (Succinum), a fossil resin, occurring in alluvial deposits in Bohemia, etc., and thought to be the exudation of *Pinites succinifer*, an extinct coniferous tree. Dose, gtt. v–x. (See *ante*, under SUCCINUM.)

Oleum Thujæ, *Oil of Thuja*,—a volatile oil which is given in doses of ♏ j–v. A saturated tincture may be used in drachm doses. Obtained from *Thuja occidentalis*, the Arbor Vitæ, a coniferous tree. (See under THUJA.)

PHYSIOLOGICAL ACTION.

TURPENTINES are stimulant, diuretic, anthelmintic, and hemostatic; in large doses laxative and irritant, and externally used are rubefacient and antiseptic. Their virtues depend entirely on the volatile oil.

OIL OF TURPENTINE in small doses causes a sense of heat at the epigastrium, burning in the mouth, and salivation by reflex action. In moderate doses it at first stimulates the vaso-motor nervous system, afterwards paralyzing these centres, thus causing a rise and then a fall of the arterial tension. It lowers the functions of the brain, spinal cord and medulla in the order stated, causing diminution of voluntary movement and reflex action, dilatation of the vessels, lowered blood-pressure, and slowed respiration, the latter often becoming spasmodic. The pulse is sometimes slowed, sometimes quickened. Large doses produce gastro-enteritis, with vomiting and diarrhœa, suppression of urine, pain in the lumbar regions, burning in the urethra, hematuria and strangury. The muscular power is diminished, coördination impaired and a state of intoxication induced. Toxic doses cause complete muscular relaxation, profound insensibility, with abolished reflexes, dilated pupils, cyanosed face, labored and stertorous breathing and death by paralysis of respiration. It is excreted by the various organs of excretion, all of which are highly irritated, the kidneys suffering particularly. Its vapor inhaled produces nasal and renal irritation, frontal headache, and frequently strangury and hematuria. Locally to the skin it is rubefacient, and even vesicant if applied for any length of time or if evaporation be prevented.

The Oil, when exposed to the air, readily absorbs oxygen in the form of ozone, which it retains tenaciously. This Ozonized Oil of Turpentine is an antidote to Phosphorus, preventing the formation of phosphoric acid, and converting the phosphorus into an insoluble substance resembling spermaceti. Worn about the neck in an open vial it is believed to prevent necrosis of the jaw and steatosis of the organs in workmen exposed to phosphorus-fumes. It is also supposed to dissolve gall-stones.

Antagonists.

In cases of poisoning the stomach should be emptied, anodynes and demulcents administered, elimination favored, and special symptoms met as they arise.

THERAPEUTICS.

The Oil of Turpentine is employed externally as a rubefacient and counter-irritant in many conditions producing pain and inflammation. Cloths wrung out of hot water and then sprinkled with the oil (turpentine stupes), are useful applications in sciatica and other neuralgiæ, lumbago, chronic rheumatism, chronic bronchitis, peritonitis with tympanites, pleurisy, renal colic, etc. It is one of the most efficient agents in hospital gangrene, applied in full strength to the part affected. The liniment is in constant use for sprains, neuralgia, and other slight local affections.

Internally it is best employed in ulceration and hemorrhage of the intestines and in hemorrhages of a passive character from other organs. Active bleeding with a plethoric condition and hematuria are states in which it is contraindicated. It is often used with Ether (1 to 3) in biliary and flatulent colic, as an anodyne and antispasmodic. As a vermifuge against tape-worm it must be employed in large doses (℥ss–ij) with Castor oil to promote its rapid passage through the intestinal canal. The French acid oil, which is old and contains ozone, is used in phosphorus poisoning. It is well employed as a stimulant to the heart and vaso-motor system in puerperal fever, yellow fever, traumatic erysipelas, pneumonia, capillary bronchitis, etc. It is also useful in chronic bronchial catarrh, chronic cystitis, subacute gonorrhœa and similar affections of the mucous surfaces generally.

Inhalations of the vapor or atomized oil are extremely beneficial in chronic affections of the larynx and bronchi. The pure vapor is too irritating for inhalation, but it may be diluted with steam from a steam atomizer.

CHIAN TURPENTINE is one of the many remedies which have been used for cancer.

TEREBENE has been extensively used by Dr. Murrell, with excellent results, as a remedy for obstinate winter-cough and emphysema of the lungs, in flatulence, and flatulent dyspepsia, also in cystitis and in gleet, and as a spray in phthisis and post-nasal catarrh, also with Cocaine in solution as a spray for coryza and hay-fever. Other observers, of several years' experience with this remedy in England, praise it highly as an inhalant remedy in phthisis, bronchiectasis, chronic bronchitis, and other pulmonary affections characterized by profuse, purulent expectoration. Dr. Rieu employs it extensively in bronchitis and bronchorrhœa, in doses internally of gr. xv–xxx per diem,—but says that it does not affect the muco-purulent expectoration of phthisis. It probably has no superior efficacy to Creosote, Venice Turpentine, etc., except that it is without much odor, and has no taste.

TERPIN HYDRATE is praised very highly in chronic and recurrent bronchitis, night-cough from habit, cold, catarrhs and kindred affections. In fact, all acute and many chronic affections of the respiratory passages form the proper field for the therapeutical action of this preparation.

THEOBROMATIS OLEUM, Oil of Theobroma (*Cacao-butter*),—is a fixed oil expressed from the seed of *Theobroma Cacao*, the Chocolate-tree, nat. ord. Sterculiaceæ, growing in Mexico, the West Indies and South America. The oil is a yellowish-white solid, of faint odor, bland taste and neutral reaction, and melting at 86° to 95° F.

The seeds are oval, about the size of almonds, and consist of shells and kernels, in both of which is found the alkaloid *Theobromine* $C_7H_8N_4O_2$, which closely resembles Caffeine, the latter being its methyl derivative. *Chocolate* is prepared by roasting the seeds, removing the shells, then crushing or grinding the kernels to a smooth paste, which is cast in molds.

Oil of Theobroma consists chiefly of Stearin with a little Olein. Its action is demulcent, and it does not become rancid on exposure to the air. Its chief use is as a basis for making suppositories. A Cerate is prepared by melting together Cacao-butter 35, White Wax 35, Oil of Almond 30, adding a drop of Oil of Rose and coloring with a minute quantity of Carmine previously triturated with a drop of Water of Ammonia. This is known as Red Lip-salve.

THEOBROMINE has the same action and uses as Caffeine. [See under CAFFEA, for this principle and for Diuretin.]

THUJA, Arbor Vitæ (Unofficial),—the fresh tops of *Thuja occidentalis*, a tree of the nat. ord. Coniferæ, commonly though incorrectly called White Cedar, and growing in swampy ground in Canada and the northern U. S. Its twigs are flattish and two-edged, with scale-like leaves appressed and closely imbricate in four rows, rhombic-ovate, obtusely pointed, having a roundish gland upon the back; of a balsamic, somewhat terebinthinate odor, and a pungently aromatic, camphoraceous and bitter taste. They contain a volatile oil, tannin, wax, resin, etc.; also *Pinipicrin*, $C_{22}H_{18}O_{11}$, a bitter principle, and *Thujin*, $C_{20}H_{22}O_{12}$, a yellow, astringent and crystallizable coloring principle, which is separable into glucose and *Thujetin*, $C_{14}H_{14}O_8$.

Preparations.

The dose of a saturated, fresh tincture or fluid extract is ʒj 3–6 times daily. The Volatile Oil may be given in doses of ♏ j–v.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Thuja resembles Savine in action very closely. It is stimulant, irritant, astringent, also aromatic, diuretic and emmenagogue. The oil is a gastro-intestinal irritant, and produces epileptiform convulsions in warm-blooded animals, and paralysis in cold-blooded ones. It causes rhythmical contraction and dilatation of the vessels, lowers the temperature, and is anthelmintic. Thuja is indirectly an abortifacient when given in doses sufficient to cause violent gastro-enteritis, and is reported to have produced an acute urethritis resembling gonorrhœa.

Thuja in decoction has been usefully employed in coughs, rheumatic and arthritic pains, dropsy and amenorrhœa. It has also been given with benefit in intermittent fever and as an alterative blennorrhetic in chronic catarrh and bronchorrhœa. It is highly praised by Dr. Phillips for the cure of warts with narrow base and pendulous body, a strong tincture being applied locally and given internally at the same time in 5-minim doses twice daily. Dr. Piffard speaks strongly in its favor as a valuable agent for non-syphilitic warts (condylomata acuminata) of the penis and vulva, for papillomatous growths in general, and for gleets dependent on granular urethritis. It has been used in chronic gonorrhœa and prostatitis with asserted success, and is said to have cured epithelioma. The oil has been employed as a vermifuge.

THYMI OLEUM, Oil of Thyme,—is a volatile oil distilled from *Thymus vulgaris*, Garden Thyme, a common shrub of the nat. ord. Labiatæ, indigenous in France but cultivated in our gardens. This oil is a pale yellow or colorless, thin liquid, having a strong odor of thyme, a warm, pungent and afterward cooling taste, and a neutral reaction, of sp. gr. from 0.900 to 0.930, and readily soluble in alcohol. It consists of two portions, the more volatile being a mixture of the hydrocarbons *Cymene* and *Thymene*, the less volatile being chiefly *Thymol*, which is also official.

Thymol, $C_{10}H_{14}O$,—is a phenol contained in Oil of Thyme and in the volatile oils of several other plants. It occurs in large, colorless, hexagonal crystals, of aromatic odor, pungent taste and neutral reaction; soluble in 1200 of water, 900 of boiling water, and in 1 of alcohol at 59° F., freely in fats and oils, solutions of chloral and alkalies, ether, chloroform, etc. It liquefies when triturated with about equal quantities of camphor, menthol or chloral. Dose, gr. ss–ij.

Unofficial Preparations.

Thymol Solution,—for antiseptic spray, 1 in 1000.

Thymol Gauze,—contains 1 per cent. of Thymol.

Thymol Ointments,—vary from 5 to 30 grains to the ℥.

Thymol Inhalation,—Thymol gr. xx, Alcoholis ʒiij, Magnesium Carbonate gr. x, Water to ℥iij. A teaspoonful to a pint of water at 150° F. for each inhalation.

Volkmann's Antiseptic Fluid,—has of Thymol 1, Alcohol 10, Glycerin 20, and Water 100 parts.

PHYSIOLOGICAL ACTION.

OIL OF THYME has the same properties as the oils of other mints, and containing a large quantity of Thymol it is similar to the latter in action.

THYMOL in its action stands between Carbolic Acid and Oil of Turpentine. Like the former it is a powerful antiseptic and disinfectant. It is a local irritant and anæsthetic to the skin and mucous membranes, paralyzing the end-organs of the sensory nerves. When absorbed it paralyzes the nerve-centres in the spinal cord and in the medulla, lessening reflex action, slowing respiration, lowering the temperature and the arterial tension, and in poisonous doses causing weakness, coma and death. Internally administered in doses of 20 to 30 grains per diem it produces a sensation of epigastric heat, sweating, singing in the ears, deafness, a sense of constriction in the forehead, and increase of the urinary discharge, which assumes a dark, greenish hue. It is eliminated by the respiratory and urinary organs, which it irritates considerably during the process of its excretion. As an antiseptic it is much more powerful and permanent than Carbolic Acid, and much less poisonous.

THERAPEUTICS.

THYMOL is chiefly employed in lieu of Carbolic Acid as an antiseptic for dressing wounds; as a gargle, spray or inhalation in laryngitis and diphtheria; as an ointment in ringworm, eczema and psoriasis, and as an injection in ozæna. A solution of 1 part in 1000 is the strength usually employed. Internally it has been used with success in diphtheria, typhoid fever, and other intestinal affections, diabetes, phthisis, and vesical catarrh. Its fragrant odor renders it a very agreeable antiseptic application for ulcerated conditions of the mouth and fauces, but makes it very attractive to flies; which fact, together with its high price, will prevent it becoming a favorite in hospital practice. A solution, used as a mouth-wash, is very efficient in removing the odor of tobacco from the breath.

TIGLII OLEUM, Croton Oil,—is a fixed oil expressed from the seed of *Croton Tiglium*, a small tree of the nat. ord. Euphorbiaceæ, and a native of India. The oil is of a pale or brownish-yellow color, somewhat viscid and slightly fluorescent, of fatty odor, acrid taste and slightly acid reaction; sp. gr. 0.940 to 0.960, soluble in 60 of alcohol, freely in ether, chloroform, or carbon disulphide. Its composition is very complex and has not been thoroughly made out, but it is known to contain the glycerides of several fatty acids, also a peculiar acid named *Tiglinic Acid*, $C_5H_8O_2$, which is isomeric with Angelic Acid. Dose of the oil, ♏ ⅓–ij, in pill, emulsion or tincture.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Externally Croton Oil is highly irritant, producing a pustular eruption which heals by scabbing and may leave unsightly cicatrices. Internally it is a powerful drastic cathartic, producing in one or two hours copious watery stools, in overdoses causing great congestion of the intestinal canal and perhaps death from gastro-enteritis. Vomiting usually occurs after large doses, so that the irritant hyper-catharsis is not always observed. It is absorbed into the blood, and produces glandular hyperæmia as well as direct inflammation of the intestinal mucous membrane, together with increased peristaltic action. Its cathartic power is increased by the addition of an alkali, and is manifested, though in less degree, when applied to the integument.

Croton Oil is used as a hydragogue cathartic when a speedy and complete evacuation of the bowels, diminution of arterial pressure and prompt derivative action are desired, as in apoplexy, impaction of the intestines, dropsy, lead constipation, paralysis, etc. It is contraindicated where there is debility, organic obstruction, and inflammatory conditions of the stomach and bowels. The smallness of the dose makes it a very easily administered and manageable purgative. A considerable fraction of a drop is absorbed by a pellet of sugar or bread, and may be given thus in repeated doses until the desired effect is obtained. It has been used as a vermifuge against tapeworm.

Externally it is employed as a counter-irritant in ovaritis, bronchitis, pleurisy, rheumatism, neuralgia, glandular swellings and in laryngeal and pulmonary diseases. The Linimentum Crotonis of the British Pharmacopœia contains 1 part of the oil in 3½ each of Alcohol and Oil of Cajuput, and is a useful pustulant preparation, being more manageable than the oil itself.

TONGA (Unofficial),—is a mixed drug said to be obtained from the Fiji Islands, consisting of thin barks, root-fibres and leaves, tied into long bundles. The fibrous material is believed to be derived from *Rhaphidophora vitiensis*, a creeping plant of the nat. ord. Araceæ, containing starch, potassium chloride and a volatile alkaloid *Tongine*. The barky portion is referred to *Premna tatiensis*, a shrub or tree of the nat. ord. Verbenaceæ, and contains a little volatile oil, sugar, pectin, etc. A fluid extract is on the market, which may be given in doses of ♏ xxx–ʒj thrice daily.

Tonga was introduced by Drs. Ringer and Murrell as a remedy for neuralgia in 1880, stating that they had used it with gratifying results. Since then reports have differed considerably in regard to its efficacy, and from the fact that Dr. Ringer does not mention it in the later editions of his Handbook of Therapeutics, it may be inferred that his further experience with it has not borne out the claims first made.

TRAGACANTHA, Tragacanth,—is a gummy exudation from *Astragalus gummifer* and from other species of *Astragalus*, shrubs of the nat. ord. Leguminosæ, growing chiefly in the mountainous regions of Asia Minor and Persia. It occurs in shell-like, curved or contorted bands, translucent, faintly yellowish, horn-like, tough, swelling with water to a gelatinous mass, which is tinged blue by test-solution of iodine, and consists of a mixture of *Arabin*, or gum-arabic, which is soluble in water, and *Bassorin*, a gum which is insoluble in water but swells up in it, also a little starch.

Mucilago Tragacanthæ, *Mucilage of Tragacanth,*—Tragacanth 6, Glycerin 18, Water to 100. Dose, ℥j or more.

Tragacanth is demulcent, but in large quantities it may cause indigestion. It is chiefly employed to suspend resins and heavy powders in emulsion. The mucilage may be used as a vehicle for active agents in gargles for pharyngitis, and to cause cohesion in the preparation of pills, troches, etc. It is a constituent of 12 of the 15 official troches, and is a better agent than acacia for making emulsions of cod-liver oil.

TRITICUM, Couch-grass,—is the rhizome, gathered in the spring and deprived of its roots, of *Agropyrum repens*, the Couch-grass, a perennial plant of the nat. ord. Gramineæ, abounding in meadows and cultivated grounds, where it ranks as a weed, though of the same genus as wheat. The rhizome is very long, but as met with in the shops is cut into two sections about $\frac{3}{5}$ths inch in length and $\frac{1}{12}$ inch thick, creeping, smooth, hollow in the centre, of straw color, and sweet taste. It contains much sugar and a gum-like principle, *Triticin*. Dose, ʒj–℥j, in infusion or decoction.

Extractum Tritici Fluidum, *Fluid Extract of Triticum.*—Dose, ʒj–℥j, well diluted.

Couch-grass is demulcent, emollient and a feeble diuretic. It is chiefly used in cystitis and irritable bladder. The infusion is a popular fever-drink in Europe, and has had of old a considerable reputation in dysuria.

ULMUS, Elm, Slippery Elm,—is the inner bark of *Ulmus fulva*, an indigenous tree of the nat. ord. Urticeæ, and occurs in flat pieces of various sizes, having a slight, peculiar odor and a mucilaginous, insipid taste. It contains a large quantity of mucilage which it readily parts with to water.

Mucilago Ulmi, *Mucilage of Elm,*—Elm 6, Water to 100, digested for an hour and strained. Dose, ad libitum. Should be freshly made, when wanted.

Slippery-elm Bark is demulcent, slightly astringent and somewhat tonic. It is used internally in diarrhœa, dysentery and affections of the urinary passages, and externally in the form of poultice as an emollient application in cases of inflammation. It is also employed in the dilatation of fistulæ, strictures and the os uteri.

UVA URSI, Bearberry,—the leaves of *Arctostaphylos Uva-ursi*, a low, evergreen shrub, of the nat. ord. Ericaceæ, inhabiting the northern latitudes and high mountains of Europe, Asia and America. The leaves are small, obovate, nearly sessile, shining, reticulated beneath, of a faint but hay-like odor, and a strongly astringent taste. They contain Tannic and Gallic Acids and 3 principles, viz.,—*Arbutin*, $C_{24}H_{32}O_{14}$, a bitter glucoside, neutral, crystalline, soluble in warm water and resolvable into glucose and *Hydroquinone*, $C_6H_6O_2$;—*Ericolin*, $C_{34}H_{56}O_2$, bitter and amorphous;—*Ursone*, $C_{20}H_{34}O_2$, resinous, neutral, crystalline and tasteless. The Californian Manzanita (*Arctostaphylos glauca*) is an allied plant and also contains Arbutin and Tannin. Dose of the powdered leaves, gr. x–ʒj in infusion or decoction.

Preparations.

Extractum Uvæ Ursi, *Extract of Uva Ursi.*—Dose, gr. ij–x.
Extractum Uvæ Ursi Fluidum, *Fluid Extract of Uva Ursi.*—Dose, ♏ x–ʒj.
Infusum Uvæ Ursi, *Infusion of Uva Ursi* (Unofficial),—℥j to Oj. Dose, ℥j–ij.
Arbutinum, *Arbutin*, $C_{24}H_{32}O_{14}$ (Unofficial).—Dose, gr. iij–v.

Physiological Action and Therapeutics.

Uva ursi is astringent, tonic and feebly diuretic. Used in large quantity it produces vomiting and purging, and is alleged to have oxytocic power. Arbutin is an efficient diuretic, and is decomposed in the body, yielding Hydroquinone which is excreted by the kidneys as Hydroquinone-Sulphuric Acid. This is non-toxic, imparts a brown color, with antiseptic and slightly irritant qualities, to the urine.

Bearberry was formerly used in all calculous affections and chronic disorders of the urinary passages. It has some reputation as an antilithic, and is no doubt useful in gravel, chronic nephritis, cystitis, urethritis, and kindred diseases. It relieves incontinence of urine, dysuria and strangury, and has proved serviceable even in uterine hemorrhages. Arbutin has been successfully employed in cardiac dropsy as a diuretic, also in urethritis.

VALERIANA, Valerian,—is the rhizome and roots of *Valeriana officinalis*, a large, herbaceous plant of the nat. ord. Valerianeæ, having small, white, or rose-colored flowers, and opposite pinnate leaves on an erect, round and channeled stem. The plant is a native of Europe, but is cultivated in Vermont and New York. The root is perennial, its rhizome about an inch long, upright, truncate at both ends, internally whitish or pale-brownish with a narrow circle of white wood under the thin bark. Odor peculiar, taste camphoraceous and bitter. It contains a complex *Volatile Oil*, from which are developed by oxidation *Valerene*, $C_{10}H_{16}$, which is a terpene, *Valerol* or Baldrian Camphor, $C_{12}H_{20}O$, and *Valerianic Acid*, $C_5H_{10}O_2$, which occurs also in many other plants and in cod-liver oil. The Valerianic Acid of pharmacy is obtained as a product of the oxidation of Amylic Alcohol, and from it are formed the various Valerianates. It is not identical with the natural acid. Dose of the powdered root, gr. x–xxx.

Preparations of Valerian.

Extractum Valerianæ Fluidum, *Fluid Extract of Valerian.*—Dose, ♏ x–ʒj.

Tinctura Valerianæ, *Tincture of Valerian*,—strength 20 per cent. Dose, ʒss–ij.

Tinctura Valerianæ Ammoniata, *Ammoniated Tincture of Valerian*,—has of Valerian 20, Aromatic Spirit of Ammonia to 100. Dose, ʒss–ij.

Oleum Valerianæ, *Oil of Valerian* (Unofficial),—the volatile oil, sp. gr. about 0.950, a greenish or yellowish, thin liquid, having the odor of valerian, an aromatic taste and a slightly acid reaction, readily soluble in alcohol. Dose, ♏ ij–v.

The Oil is by far the best preparation for use, as the tinctures are extremely nauseous and the fluid extract is too bulky. The taste is best covered by Cinnamon.

Preparations of Valerianic Acid.

Ammonii Valerianas, *Ammonium Valerianate,* $NH_4C_5H_9O_2$,—described under AMMONIUM. Dose, gr. ij–x.

Ferri Valerianas, *Ferric Valerianate,* $Fe_2(C_5H_9O_2)_6$,—described under FERRUM. Dose, gr. j–iij.

Quininæ Valerianas, *Quinine Valerianate,* $C_{20}H_{24}N_2O_2C_5H_{10}O_2 + H_2O$,—described under CINCHONA. Dose, gr. j–iij.

Zinci Valerianas, *Zinc Valerianate,* $Zn(C_5H_9O_2)_2 + 2H_2O$, —described under ZINCUM. Dose, gr. ½–iij.

The Valerianates are made with the acid produced from Amylic Alcohol, and do not represent the action of the plant, but rather that of the bases from which they are prepared.

PHYSIOLOGICAL ACTION.

VALERIAN is antispasmodic, and a gentle stimulant to the nervous and circulatory systems. It is sedative to reflex excitability, antagonizing the action of Strychnine, Brucine, Thebaine, etc., and is laxative, diaphoretic and anthelmintic. Its taste and odor are very disagreeable, but cats are extravagantly fond of it. In these animals it greatly excites the sexual appetite, probably from a resemblance between its odor and theirs when under venereal excitement. After a time it produces in them violent spasms and convulsions.

In full doses it increases the action of the heart and raises the temperature, in most persons producing exhilaration (in some, slight mental disturbance), with formication of the hands and feet. Long used it induces a condition of low melancholy and hysterical depression. Large doses cause hiccough, diarrhœa, nausea and vomiting, frequent micturition with tenesmus of the bladder and lithates in the urine, mental disturbance even to delirium, reduced motility and sensibility, and lessened reflex excitability. The Oil in large doses is paralyzant to the brain and the spinal cord, lowers the blood-pressure and slows the pulse.

The VALERIANATES follow their bases in general action, but are supposed to combine therewith some of the sedative qualities of their acid constituent.

THERAPEUTICS.

Valerian was formerly much employed in epilepsy, but it was probably useful only in the hysterical form of that disease (hystero-epilepsy). It is a valuable remedy in all forms of hysteria, especially when occurring in young and delicate women. It is also useful in flatulence of infants and in that of hypochondriacal and hysterical subjects, and in coughs of nervous type, whooping-cough, diabetes insipidus, convulsions due to worms and in delirium with vital depression. In the coma of typhus fever the oil proved remarkably efficient in a series of 135 cases out of 172 cases treated by it.

AMMONIUM VALERIANATE is used in the same class of disorders as is Valerian. It is often a good remedy for nervous headache, administered in 10-grain doses and in an elixir.

ZINC VALERIANATE has been supposed to combine the antispasmodic power of valerian with the nerve-tonic effect of a zinc salt. It has been used in cholera, epilepsy and neuralgia, frequently with considerable success.

The FERRIC and QUININE VALERIANATES are used as are the other salts of their respective bases.

VANILLA,—is the fruit of *Vanilla planifolia*, a perennial climbing plant of the nat. ord. Orchideæ, native of the West Indies and tropical America, but cultivated in Java, etc. It has dark green, tough leaves, pale greenish-yellow sessile flowers, and long pods (6 to 10 inches), wrinkled, warty, one-celled, containing a blackish-brown pulp with numerous small seeds and acicular crystals, of peculiar and fragrant odor and taste. Its characteristic odorous principle is *Vanillin*, the Methyl-ether of Protocatechuic Aldehyd, which oxidizes slowly in damp air to *Vanillic Acid*, and may be resolved into Methyl Chloride and Protocatechuic Acid. Vanillin may be made synthetically from Coniferin or from Eugenol. Dose, indefinite.

Tinctura Vanillæ, *Tincture of Vanilla*,—10 per cent. Dose, a few drops, according to the strength of flavor desired.

Trochisci Ferri, *Troches of Iron*,—contain about $\frac{1}{10}$ per cent. of Vanilla.

Vanilla is an aromatic stimulant, with considerable influence on the nervous system. It is chiefly employed as a perfume and for flavoring purposes, but has been used in hysteria and low fevers.

VERATRUM VIRIDE, American Hellebore,—is the rhizome and roots of *Veratrum viride*, the Indian Poke, Poke-root, or Swamp Hellebore, an indigenous plant of the nat. ord. Liliaceæ, having a solid, round stem, furnished with bright green leaves, and terminating in a panicle of greenish-yellow flowers. The root is perennial, upright, externally blackish-gray, internally grayish-white, 2 to 3 inches long, with numerous, shriveled rootlets, inodorous but sternutatory when powdered, taste bitter and very acrid. It contains several alkaloids, *Jervine*, $C_{26}H_{43}NO_2$, *Pseudo-jervine*, $C_{29}H_{43}NO_7$, *Cevadine*, $C_{32}H_{49}NO_9$, a very little *Rubijervine*, $C_{26}H_{43}NO_2$, and traces of *Veratrine*, $C_{37}H_{53}NO_{11}$, and *Veratralbine*, $C_{28}H_{43}NO_5$. *Veratroidine*, formerly regarded as one of its alkaloids, is now thought to be a mixture of Rubijervine and a toxic Resin. Veratrum Viride also contains Gallic Acid and Sugar.

ALLIED PLANTS.

Veratrum Album, *White Hellebore*,—is a native of the mountainous regions of continental Europe, and so closely resembles V. Viride in appearance and characteristics that it may be considered a variety of the same plant. The rhizome was official in the U. S. P. 1870. It contains the alkaloids *Jervine*, *Pseudo-jervine*, *Rubijervine*, traces of *Cevadine*, and another powerful alkaloid *Veratralbine*, $C_{28}H_{43}NO_5$.

Veratrum Sabadilla, *Cevadilla*, *Asagræa officinalis*,—is a bulbous plant of the nat. ord. Liliaceæ, indigenous in Mexico and Central

America. It contains the alkaloids *Cevadine* (formerly called Veratrine), *Cevadilline* and *Veratrine*, with *Veratric* and *Sabadillic* or *Cevadic* Acids. It is the source of the official Veratrine (see below). The seeds are official in the Br. Phar. under the title SABADILLA.

Preparations.

Extractum Veratri Viridis Fluidum, *Fluid Extract of Veratrum Viride.*—Dose, ♏j–iv.

Tinctura Veratri Viridis, *Tincture of Veratrum Viride*,—strength 40 per cent. Dose, ♏ij–x.

Norwood's Tincture of Veratrum Viride (Unofficial),—has a very high reputation for efficiency,—Dose, ♏v, increased by ♏j every 3 hours, until pulse is down to 65, when the original dose will hold it there.

Veratrina, *Veratrine*,—is a mixture of alkaloids prepared from the seeds of *Asagræa officinalis* (see above). A white, or grayish-white, amorphous powder, highly irritant to the nostrils, of very acrid taste, producing tingling and numbness of the tongue and constriction of the fauces; slightly soluble in cold water, soluble in 3 of alcohol at 59° F., in 6 of ether, 2 of chloroform, 96 of glycerin and in 56 parts of olive oil. Dose, gr. $\frac{1}{30}$–$\frac{1}{10}$.

Unguentum Veratrinæ, *Veratrine Ointment*,—Veratrine 4, Olive Oil 6, Benzoinated Lard 90. For local use.

Oleatum Veratrinæ, *Oleate of Veratrine*,—Veratrine 2, Oleic Acid 98. For local use.

PHYSIOLOGICAL ACTION.

VERATRUM VIRIDE is in action closely allied to Aconite, being a powerful cardiac depressant and spinal paralyzant. It differs from Aconite in affecting the respiration to a much less degree,—in being a systemic emeto-cathartic—in paralyzing the motor system centrally, impairing the reflexes, but leaving sensation unimpaired,—and in having little or no diaphoretic or diuretic action. It causes great depression, but is seldom fatal; when death does result from its use it usually occurs by paralysis of the heart.

In small doses Veratrum reduces the force of the pulse, but does not at first affect its rate. If continued for some time, the pulse becomes very slow, soft and compressible; rising, on the least exertion, to be very rapid and feeble. At the same time there is great muscular weakness, and frequently nausea and vomiting. Large doses increase these symptoms very much, the pulse becoming very rapid and so small as to be almost imperceptible; the skin is cold and clammy, and constant vomiting, extreme debility, giddiness, impaired vision, and partial unconsciousness ensue.

JERVINE represents in part the depressant action on the circulation and on the central nervous system. It does not, however, affect the vagus, and but very slightly the voluntary muscles or the motor nerves. It irritates the motor centres in the brain, causing convulsions; and lowers the functions of the cord, of the centres in the medulla, especially the vaso-motor, and those of the cardiac ganglia,—slowing the heart by direct depression either of the cardiac muscle or its motor apparatus. It always causes salivation, but never vomiting or purging; and kills by asphyxia, the heart beating after respiration has ceased.

VERATROIDINE, on the contrary, always causes emeto-catharsis, and produces less violent convulsions. It stimulates the vagus centre and paralyzes the vagus ends, depresses the cord, and paralyzes the respiratory centre,—but at the same time increases the excitability of the vaso-motor centre. The result is great slowing of the pulse-rate and of respiration, and lowering of blood-pressure, until the carbonized blood irritates the vaso-motor centre, when the blood-pressure rises greatly. It probably consists of Rubijervine and a toxic resin.

VERATRUM ALBUM contains a very powerful alkaloid, *Veratralbine*, and also an irritant poisonous resin (?). Its general action is similar to that of its congener, but it is much more irritant to the gastro-intestinal mucous membrane, causing violent vomiting and purging, intense abdominal and œsophageal pain, greatly reduced temperature and pulse, collapse, and death from cardiac and respiratory paralysis.

VERATRINE is an acrid, intensely irritant powder, consisting of a mixture of alkaloids. It causes violent sneezing, a burning sensation, and free salivation. It affects the heart and circulation similarly to the other Veratriæ, and in addition seems to be a direct poison to muscular tissue, and to cause violent convulsions before the muscular paralysis sets in. The alkaloids *Jervine* and *Rubijervine* both depress the circulation, while the latter produces the emeto-catharsis.

Antagonists and Incompatibles.

Alcohol, Opium, Belladonna and Ammonia counteract the cardiac depression. Morphine and Atropine should be administered hypodermically, or Laudanum internally with alcoholic stimulants; the recumbent position should be enforced, and dry heat applied to the body. Caustic alkalies are incompatible, as they decompose the alkaloids.

THERAPEUTICS.

VERATRUM VIRIDE is inferior to Aconite in most of the fevers and inflammations, by reason of its lacking power over excretion. It renders good service, however, in the early stages of many parenchymatous and serous inflammations when occurring in sthenic subjects, especially in pneumonia. It is highly esteemed in puerperal fever and in many cardiac disorders, as simple hypertrophy, irritable heart, etc. It has been used with remarkably good results in many cases of acute mania and puerperal convulsions, and it is of service in aneurism to depress the circulation to the lowest point, but in this case the recumbent position must be strictly observed in order to secure safety. It should always be administered in small doses and its effects carefully watched.

In puerperal eclampsia large doses have been administered without danger and with decided benefit, as much as 20 drops of Norwood's tincture having been administered every hour for 5 consecutive days and nights in one case, the patient making a good recovery. The same preparation may be given hypodermically, in doses of ♏ij–iv.

VERATRUM ALBUM is the Hellebore of the ancient physicians, and was much used by them as a derivative in insanity. It is rarely used at present except by the homœopathists, who give it in the cold stage of cholera, in colic, in the vomiting and purging of summer diarrhœa, in whooping-cough and asthma.

VERATRINE is chiefly used externally. The ointment or oleate may be used with benefit in many cases of superficial neuralgia, myalgia and headaches, a small quantity being rubbed in over the seat of the pain. It may be absorbed through an abrasion of the cuticle and give rise to dangerous symptoms. Internally it has been employed as a cardiac sedative in fevers and inflammation, also in acute articular rheumatism, dropsies, dysmenorrhœa and various nervous affections, but its uncertainty of action and the dangerous depression which it may produce have caused it to lose favor as an internal remedy.

VERBASCUM, Mullein (Unofficial),—is the leaves of *Verbascum Thaspus*, the Mullein-weed, a common plant of the nat. ord. Scrophulariaceæ, having large woolly leaves and yellow flowers in dense spikes. Its chief constituent is mucilage, though the flowers contain an essential oil in very small proportion. An infusion of ℥iv of fresh leaves to the pint of milk is the form in which it has generally been given; this quantity to be taken thrice daily.

Mullein is emollient and demulcent, perhaps also slightly anodyne. It has long been a popular Irish remedy in pulmonary affections, as under its use the weight steadily increases in phthisis and other wasting disorders, while expectoration is rendered more easy, cough is palliated and the general condition improved. It is also recommended in cystitis, irritable bladder, and diarrhœa, and is employed as an enema in dysentery and as a poultice for hemorrhoids. The dried leaves may be smoked with benefit in aphonia from laryngeal irritation.

VIBURNUM OPULUS, Cramp Bark,—is the bark of *Viburnum Opulus*, a shrub of the nat. ord. Caprifoliaceæ; occurs in flattish or curved bands, or in quills, the outer surface ash-gray, marked with scattered and transversely elongated warts of brownish color, due to abrasion; inodorous, taste somewhat astringent and bitter.

Extractum Viburni Opuli Fluidum, *Fluid Extract of Viburnum Opulus.*—Dose, ʒss–ij.

Viburnum Opulus is highly valued by many practitioners as a remedy for uterine and abdominal pains. The so-called *Viburnum Compound of Dr. Hayden* is stated by its manufacturers to consist of "the active principles of the Viburnum Opulus, Dioscorea Villosa, Scutellaria Lateriflora, and a combination of aromatics, prepared by a process peculiar to ourselves." This they call publishing the formula of the preparation.

VIBURNUM PRUNIFOLIUM, Black Haw,—is the bark of *Viburnum prunifolium*, an indigenous shrub of the nat. ord. Caprifoliaceæ, having sharply serrulate leaves, and small, white flowers in terminal cymes. The bark occurs in glossy, purplish brown, thin pieces or quills covered with scattered warts and minute black dots; inner surface whitish and smooth, inodorous, somewhat astringent and bitter. It contains tannic, oxalic, citric and malic acids, sulphates and chlorides; also two resins, one of which is named *Viburnin*, and *Viburnic Acid*, which is identical with Valerianic Acid.

Extractum Viburni Prunifolii Fluidum, *Fluid Extract of Viburnum Prunifolium.*—Dose, ʒ ss–ij.

Viburnum Prunifolium is considered to possess nervine, antispasmodic, astringent, diuretic and tonic properties, and to be especially useful in preventing abortion, in the nervous diseases of pregnancy, and in spasmodic dysmenorrhœa. It may be administered with cannabis indica, morphine, nerve-sedatives or simple aromatics. No exact observations have been made regarding its action, and its therapeutical claims are denied by many who have used it. It often excites nausea and vomiting.

VIOLA TRICOLOR, Pansy (Unofficial),—is the wild-grown, flowering herb of *Viola tricolor*, the Heart's-ease Pansy, a plant of the nat. ord. Violaceæ, native in Europe, but naturalized in the southern U. S. It has an angular and nearly smooth stem; leaves alternate, petiolate, ovate or oblong and crenate; flowers with an obtuse spur and variegated petals, inodorous, taste somewhat bitter and acrid. It contains an active alkaloid, *Violine*, allied in many respects to Emetine, and poisonous. Dose, gr. x–ʒ j, in decoction.

Viola is mucilaginous, emollient, expectorant and slightly laxative. Its active principle is emeto-cathartic, but exists in very small quantity in the plant. A decoction of the fresh herb in milk, with a poultice of the same, was formerly recommended highly in crusta lactea and impetigo. It is used with benefit in some forms of eczema, especially in that of the head and face, and has had some reputation in bronchitis and constitutional syphilis.

Viola Cucullata, the common Violet, is used in Pennsylvania with success as an internal antidote against rattlesnake venom. The leaves are eaten, and a poultice of salt and indigo is applied to the wound.

VISCUM, Mistletoe (Unofficial),—occurs in two species, (1) *Viscum album*, the European Mistletoe, a small, parasitic, evergreen shrub, of the nat. ord. Loranthaceæ, growing chiefly on deciduous-leaved trees, and (2) *Viscum flavescens*, the American species, growing on oaks, elms, etc. They contain mucilage, starch, fixed oil, resin, salts, etc., and *Viscin*, or Bird-lime, which occurs also in Ilex aquifolium, Gentiana lutea and other plants. Dose, gr. x–ʒ j in decoction, or ♏v–xxx of a ten per cent. tincture.

The berries of the mistletoes have produced emeto-catharsis, with great thirst, tenesmus, bloody stools, convulsions and even death in young children. The leaves and twigs have been used in epilepsy, hysteria, chorea, asthma and other nervous affections. The American plant is asserted to possess qualities similar to those of Digitalis, and to incite uterine contractions. It has been used in cardiac affections, dropsies, uterine hemorrhages and amenorrhœa, also as an abortifacient.

VITELLUS, Yolk of Egg,—is the yolk of the egg of the domestic fowl, *Gallus Bankiva*, var. *domestica*. It is a viscid, reddish-yellow, opaque liquid, of bland taste, alkaline reaction, odorless, and may be regarded as a dense emulsion of oil suspended in water by means of albumen. It is coagulated by heat or by alcohol, and contains *Vitellin*, which is a proteid related to casein, also *Cholesterin* and *Albumin*, besides fat, inorganic salts, sugar, etc.

Preparation.

Glyceritum Vitelli, *Glycerite of Yolk of Egg* (*Glyconin*),—consists of Vitellus 45, Glycerin 55, rubbed together until thoroughly mixed.

Yolk of Egg is highly nutritive and forms a useful article of diet in exhausted conditions of the system, but its chief use in medicine is for emulsionizing oils and camphors. The Glycerite has the consistence of honey and forms an opaque emulsion with water. It is a very good vehicle for cod-liver oil, and an excellent protective application for burns, erysipelas, fissure of the nipples and many cutaneous disorders. It is also used as a cosmetic, and may be employed as an aliment.

XANTHOXYLUM, Prickly Ash,—is the bark of *Xanthoxylum americanum*, the northern species, and of *Xanthoxylum Clava-Herculis*, the southern species, of an indigenous shrub of the nat. ord. Rutaceæ, having small, greenish flowers, alternate, unequally pinnate leaves, leaflets punctate with pellucid dots, stems and leafstalks armed with prickles. The bark of both species comes in curved or quilled fragments, of a brownish-gray color externally with whitish patches, and minute black dots, faintly furrowed, inodorous, bitter and pungent; that of the northern is about $\frac{1}{25}$ inch thick, has several two-edged spines each ¼ inch long; the bark of the southern is twice as thick as the other and is marked by many conical, corky projections, and by stout brown spines, arising from corky bases. It contains a volatile oil, a fixed oil, resin, gum, coloring matter and an alkaloid, *Xanthoxyline*, which is identical with *Berberine*. Dose, of the powdered bark, gr. x–xxx.

Preparations.

Extractum Xanthoxyli Fluidum, *Fluid Extract of Xanthoxylum.*—Dose, ʒ ss–j.

Decoctum Xanthoxyli, *Decoction of Xanthoxylum* (Unofficial),—℥j to the quart. Dose, a pint during 24 hours in divided doses.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Xanthoxylum is a stimulant and aromatic bitter, a local and systemic sialagogue, also diaphoretic, diuretic and emmenagogue. Its taste is aromatic, soon becoming acrid and bitter, and causing profuse salivation, tingling in the tongue and increased secretion from the stomach, intestines, liver and pancreas. It also increases the cardiac action and raises the arterial tension, and is classed among the vegetable alteratives, with Mezereum, Guaiac, Stillingia, etc.

Xanthoxylum has a high reputation in chronic rheumatism, myalgia, lumbago and similar disorders, also in jaundice from catarrh of the bile-ducts, in dropsies, chronic pharyngitis and constitutional syphilis. In old cases of pharyngitis, the mucous membrane being glazed and dry, the decoction should be used as a gargle and ♏ x–xxx of the fluid extract taken internally thrice daily. The bark, used as a masticatory, is a popular remedy for toothache, and has been frequently successful in paralysis of the tongue.

ZEA MAYS, Maize, Indian Corn.—This well-known species of the nat. ord. Gramineæ, though itself unofficial, is the source of the official Starch (see AMYLUM), and of two drugs, of which one is official, viz.:—

Zea, *Corn-Silk* (*Stigmata Maydis*),—the styles and stigmas of *Zea Mays*, which should be gathered when the tassels have shed their pollen. It occurs thread-like, yellowish or greenish, soft-silky, inodorous, taste sweetish. Its active principle is thought to be *Maizenic Acid.* There are no official preparations.

Extractum Zeæ Fluidum, *Fluid Extract of Zea* (Unofficial),—is made by the general rule for fluid extracts. Dose, ʒj–ij.

Ustilago, *Corn Smut* (Unofficial), — is *Ustilago Maydis*, nat. ord. Fungi, a smut grown upon the stems, the pistils and the male inflorescence (tassel) of *Zea Mays.* It occurs in irregular, globular masses, sometimes 6 inches thick, and consisting of a blackish membrane, inclosing numerous globular, minute spores, their surfaces covered with echinulate warts. Its odor and taste are unpleasant, and it contains fixed oil, resin, pectin, gluten, sugar, an acid resembling the Sclerotic Acid of Ergot, and a volatile principle called *Secaline*, which is supposed to be identical with Trimethylamine.

Extractum Ustilaginis Fluidum, *Fluid Extract of Ustilago* (Unofficial),—may be prepared by the general rule for fluid extracts. Dose, ♏x–ʒj.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

ZEA is a certain but mild diuretic when given in full doses at short intervals. It is by some observers considered demulcent and anodyne, and is generally believed to have a specific or alterative influence over many disorders of the genito-urinary passages and the urinary bladder. It has been used with considerable success in incontinence of urine, uric and phosphatic gravel, gout, rheumatism, urethritis, pyelitis, acute and chronic cystitis, cardiac dropsy and obstructive valvular disease of the heart.

The properties of USTILAGO, so far as examined, resemble those of Ergot and Nux Vomica combined. It is a spinal excitant, exalts sensibility and reflex action, producing tonic convulsions on the least irritation of the skin. It slows the heart by stimulation of the pneumogastric, dilates the pupils, causes muscular paresis, and death by tetanus of the respiratory muscles or by exhaustion. Experiments on its reputed oxytocic action have not substantiated the claims made for it in this respect, though it is said to have produced abortion in cows and other animals, after they had eaten the diseased grain. As a therapeutic agent Ustilago has been very little used, but when employed it has been as a substitute for Ergot.

ZINCUM, Zinc, Zn,—is metallic Zinc, in the form of thin sheets, or irregular, granulated pieces, and is a bluish-white metal, having the sp. gr. 6.9. It occurs native as a Sulphide (*Blende*), as a Carbonate and a Silicate (*Calamine*), as a Red Oxide (*Zincite*), and as a mixture of Zinc Oxide with Oxide of Iron and Manganese (*Franklinite*). Zinc is soluble in the weakest acids, and therefore should never be used for culinary vessels. Its salts are all more or less active poisons. Metallic Zinc is official, but is not employed as a medicine.

Zinc Salts and their Preparations.

Zinci Acetas, *Zinc Acetate,* $Zn(C_2H_3O_2)_2 + 2H_2O$,—soft, white, micaceous or pearly, six-sided tablets or scales, somewhat efflorescent in dry air, of faintly acetous odor, sharp metallic taste and a slightly acid reaction; soluble in 3 of water and in 36 of alcohol at 59° F., in 1½ of boiling water and in 3 of boiling alcohol. Used locally as an astringent in solution of gr. j or ij to ℥j, or internally in doses of gr. ½–ij.

Zinci Carbonas Præcipitatus, *Precipitated Zinc Carbonate,*—a white, impalpable powder, permanent in the air, odorless and tasteless, insoluble in water or alcohol, but soluble in acids with copious effervescence. When strongly heated it loses water and carbonic acid gas, leaving a residue of oxide of zinc. Used locally as a protective.

Zinci Chloridum, *Zinc Chloride,* $ZnCl_2$,—a white, granular powder, or porcelain-like masses, or moulded into pencils, odorless, of such intensely caustic properties as to make tasting dangerous; very soluble in water and in alcohol; very deliquescent. Is tonic and escharotic. For internal use a solution in Spirit of Ether is the most convenient form, strength ʒj to ℥j, of which four to eight minims may be given twice daily in water. Strength of injections and collyria, gr. j–ij to the ℥.

Liquor Zinci Chloridi, *Solution of Zinc Chloride,*—is an aqueous solution, containing about 50 per cent. of the salt. A clear, colorless, odorless liquid, of a very astringent, sweetish taste and an acid reaction. A powerful disinfectant for sinks, drains, etc. Used also as an injection in gonorrhœa, leucorrhœa, etc., in dilute solution, ½ to 1 per cent. **Burnett's Disinfecting Fluid** is similar to the above but slightly stronger.

Zinci Iodidum, *Zinc Iodide,* ZnI_2,—a white, granular powder, very deliquescent, of sharp, saline and metallic taste and acid reaction; very soluble in water and in alcohol. Dose, gr. ss–ij in syrup.

Zinci Oxidum, *Zinc Oxide,* ZnO,—an amorphous, white powder, without odor or taste; insoluble in water or alcohol; soluble, without effervescence, in dilute acids, also in ammonia water. Dose, gr. j–x, in pill.

Unguentum Zinci Oxidi, *Ointment of Zinc Oxide,*—has of Zinc Oxide 20, Benzoinated Lard 80.

Oleatum Zinci, *Oleate of Zinc,*—has of Zinc Oxide 5, in Oleic Acid 95. For external use.

Zinci Sulphas, *Zinc Sulphate,* $ZnSO_4+7H_2O$,—small colorless prisms or acicular needles, slowly efflorescing in dry air, odorless, of sharp, saline, nauseous and metallic taste and acid reaction; soluble in 0.6 of water, insoluble in alcohol. Dose, as emetic, gr. x–xxx,—as a tonic and astringment, gr. $\frac{1}{10}$–ij, in pill. For **Villate's Solution,** see under CUPRUM.

Zinci Valerianas, *Zinc Valerianate,* $Zn(C_5H_9O_2)_2+2H_2O$,—white, pearly scales, having the odor of valerianic acid, a sweetish and styptic taste and acid reaction; soluble in about 100 of water and in 40 of alcohol. Dose, gr. $\frac{1}{10}$–ij, in pill.

The Bromide is described under BROMUM, and the **Phosphide** under PHOSPHORUS.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Zinc Salts are astringents, but milder ones than the salts of Lead. Its soluble compounds (the Chloride, Iodide, Sulphate and Acetate) are corrosive poisons, causing violent gastro-enteritis, and in some cases profound nervous depression. The CHLORIDE is a very powerful and painful escharotic or rather mummifier of the tissues, having great affinity for water, coagulating albumen and shrivelling the vessels. It is a very active disinfectant. The SULPHATE is also escharotic and a specific emetic, acting promptly by direct irritation of the stomach, and without much depression or after-nausea. In small doses it is tonic and astringent, in larger it would be a severe irritant but for its causing prompt emesis. The ACETATE resembles the Sulphate in action. The OXIDE used externally is a mild, soothing astringent; used internally it enters the blood as a lactate or chloride, and acts as a mild astringent and as a nervous sedative. Being almost insoluble in the stomach, it has but feeble diffusive power and consequently but slight activity. The CARBONATE resembles the Oxide in action. The IODIDE locally is a powerfull escharotic and has been supposed to possess some alterative powers when given internally in addition to its astringent qualities as a zinc salt. The VALERIANATE acts as a nervous sedative, but its properties are in all probability due to its base and not to the acid combined with it.

Continued use of Zinc salts produces symptoms similar to those of chronic lead-poisoning, but of much less gravity. They manifest much less tendency to accumulate in the system than other metallic salts, and are excreted much more rapidly. Elimination takes place chiefly by the liver and intestinal glands.

The action of the Bromide and Phosphide are described respectively under BROMUM and PHOSPHORUS.

Antidotes and Incompatibles.

Lime-water, mucilaginous drinks, soap, Tannic Acid, milk, Potassium and Sodium Carbonates, if given early, are the antidotes in poisoning by the salts of zinc. Incompatibles are—Lime-water, Alkalies and their carbonates, Silver Nitrate and vegetable astringents. Lead Acetate produces double decomposition with zinc salts, but it is often used in solution with the Sulphate as an injection.

THERAPEUTICS.

Zinc salts are chiefly employed in weak solution as mild astringent applications in catarrhs of mucous membranes, such as conjunctivitis, gonorrhœa, etc., and as unguents and lotions in skin diseases, particularly eczema, impetigo, herpes, and erythema. The CHLORIDE is made into a paste with flour and glycerin for the destruction of lupus, epithelioma and other morbid growths, and for opening abscesses in locations where puncture or incision might be dangerous. The cuticle, if unbroken, should be removed by strong water of ammonia before the paste is applied, as it will not act through the epidermic tissue. It is a commonly used disinfectant and deodorant, and in weak solution (♏ iij–v of the Liquor to ℥j of water) makes a good lotion for putrid ulcers, and still weaker (gr. j–ij to the pint), is an excellent injection for gonorrhœa. The IODIDE is not employed as an escharotic, nor has it ever been a favorite remedy for internal use. It is chiefly employed in solution as an application to enlarged tonsils, and as an ointment (1 part to 8 of lard) for the reduction of glandular enlargements. The SULPHATE is used locally as an astringent to mucous surfaces generally, internally as an emetic in narcotic poisoning and croup, and in small doses as a tonic and antispasmodic in convulsive diseases, as chorea, hysteria, epilepsy, angina pectoris, asthma, etc. In diarrhœas and dysentery it is a good astringent, and is frequently combined with Opium and Ipecac. The ACETATE is used for the same purposes as the Sulphate, but is usually preferred for collyria. The OXIDE may be used as a dusting powder in intertrigo, and as an ointment in eczema and excoriated surfaces generally. In combination with Bismuth and Pepsin it is an excellent remedy for the summer diarrhœa of children, and with Aromatic Powder and Morphine it is very efficient in gastralgia. It is a good remedy in 3-grain doses for the night-sweats of phthisis, and has been successfully employed in epilepsy and neuralgia, in whooping-cough, hysteria and nervous headache, and in bronchorrhœa to check the profuse secretion. It is much employed as an ingredient of cosmetics. The CARBONATE is by some preferred to the oxide for local use in skin diseases. *Calamine Ointment*, which is a mixture of the impure carbonate (calamine) with the oxide and an unguent basis, was until recently a favorite application as a soothing protective to abrasions and inflammations of the integument. The VALERIANATE has been used in chorea, epilepsy, neuralgia, and various anomalous nervous affections, such as the nervous headache of hysterical women, nervous coughs and aphonia due to uterine and ovarian irritation.

The Bromide and Phosphide are used entirely with reference to their respective non-metallic bases, under which titles their therapeutics are described.

ZINGIBER, Ginger,—is the rhizome of *Zingiber officinale*, a plant of the nat. ord. Scitamineæ, having dingy-yellow flowers on a leafless flower-stalk, and long, lanceolate leaves on a separate stem. The plant is a native of Hindostan, but is cultivated in Jamaica, Sierra Leone, etc. The rhizome is about ⅘ inch broad, flattish, on one side lobed or clavately branched, of a pale-buff color, striate, agreeably aromatic and of a warm, pungent taste. It breaks with a mealy, fibrous fracture showing numerous small resin-cells and fibro-vascular bundles. It contains an aromatic, volatile oil and a resin.

Preparations.

Extractum Zingiberis Fluidum, *Fluid Extract of Ginger.*—Dose, ♏x–ʒss.

Tinctura Zingiberis, *Tincture of Ginger,*—alcoholic, 20 per cent. Dose, ♏xx–ʒij.

Syrupus Zingiberis, *Syrup of Ginger,*—has of the Fluid Extract 3 per cent. in sugar and water. Dose, ʒss–ij.

Trochisci Zingiberis, *Troches of Ginger,*—each troche contains of the Tincture 2 minims, with Tragacanth, Sugar and Syrup of Ginger.

Oleoresina Zingiberis, *Oleoresin of Ginger*,—contains all the virtues of the root, and is extracted by ether. Dose, ♏ ½-j, well diluted.

Ginger is also a constituent of Pulvis Aromaticus and Pulvis Rhei Compositus.

PHYSIOLOGICAL ACTION AND THERAPEUTICS.

Ginger is sialagogue when chewed, sternutatory when inhaled, and externally a rubefacient. Internally it is a grateful stimulant and carminative, produces a sensation of warmth at the epigastrium and promotes the expulsion of flatus. It is employed as a carminative in colic, as a masticatory to increase the secretion of saliva and in relaxed conditions of the throat, also internally in atonic dyspepsia, to relieve flatulence, and as an adjunct to purgative agents to correct their griping properties. The syrup is in common use as a flavoring adjuvant in prescriptions.

PART II.

PHARMACY AND PRESCRIPTION WRITING.

Pharmacy (*Pharmakon*, a medicament),—may be defined as the art of selecting and preserving medicines, and preparing them for administration. It may be divided into—

Official or *Galenical Pharmacy*,—dealing with the processes and preparations of the Pharmacopœia; and—

Extemporaneous or *Magistral Pharmacy*,—which includes the operations of compounding and dispensing remedies as directed by the prescriptions of physicians.

PHARMACOPŒIAS AND DISPENSATORIES.

A Pharmacopœia is an official list of the drugs and their preparations recognized by the medical profession of a certain country. In foreign countries the Pharmacopœias are published under government auspices and have the force of a legal standard; in the United States its publication is left to the medical and pharmaceutical professions and is revised every ten years by a convention called for that purpose. The official Pharmacopœias in the English language, with the dates of their latest revision or additions, are as follows, viz.—

The Pharmacopœia of the United States of America, 7th Decennial Revision, 1890; official from January 1, 1894.

The British Pharmacopœia, 1885. *Additions*, 1890.

Besides the above there are—The Pharmacopœa Germanica, 1882; the Pharmacopée Française (Codex Medicamentarius), 1884; the Austrian, Pharmacopœa Austriaca, 1889; Russian, Ph. Rossica, 1880; the Swedish, Ph. Suecica, 1869; the Norwegian, Ph. Norvegica, 1879; the Danish, Ph. Danica, 1868, 1874, 1876; the Belgian, Ph. Belgica, 1885; the Swiss, Ph. Helvetica, 1872, 1876; the Spanish, Farmacopea Española, 1884; the Portuguese, Ph. Portugueza, 1876; the Indian, Ph. of India, 1868; the Hungarian, Ph. Hungarica, 1888; The Netherlands', Ph. Neerlandica, 1889; the Roumanian, Ph. Romåña, 1874; the Finnish, Ph. Finnica, 1885; the Chilian, Farmacopea Chilena, 1886; the Greek, Ph. Hellenica, 1868; the Japanese, Ph. Japonica, 1886; the Mexican, Nueva Farmacopea Mexicana, 1884; the Croatia-Slavonian, Ph. Croatico-Slavonica, 1888; and the Italian, Farmacopea Italiana, 1887.

A Dispensatory is a commentary on one or more pharmacopœias, giving *in extenso* the physical and medicinal history of the drugs and preparations, together with their doses, physiological action and therapeutics, and includes similar information about many drugs which are not official in any pharmacopœia, but are of occasional use or general interest. A dispensatory is a private publication, of authority according to the reputation of its author. The principal dispensatories are American publications, and are veritable drug-encyclopædias, so elaborately do they deal with every subject embraced therein. Those of acknowledged value are—

The Dispensatory of the United States of America, by Dr. Geo. B. Wood and Dr. Franklin Bache. 17th edition, revised and largely rewritten, by Professors H. C. Wood, J. P. Remington and S. P. Sadtler. Philadelphia, J. B. Lippincott & Co. 1894.

The National Dispensatory. 5th edition, revised by Professors Stillé, Maisch and Caspari. Philadelphia, Lea Bros. & Co. 1894.

The American Dispensatory, by King & Lloyd, Cincinnati, is the recognized authority of the "eclectic" practitioners.

A Companion to the U. S. Pharmacopœia, by Drs. Oldberg and Wall; New York, Wm. Wood & Co.—is an excellent book, but not so exhaustive as the others in its method of treating the subjects embraced in it.

A Companion to the British Pharmacopœia, by Peter Squire; 15th edition, London, 1890; is the nearest English approach to the American dispensatories, and is the standard text-book on materia medica proper in Great Britain. Although a very good book it does not compare as a work of reference with either of the two great American Dispensatories first above named.

CONSTITUENTS OF VEGETABLE DRUGS.

The Constituents of Vegetable Drugs may be classified as *Soluble* and *Insoluble*, the first group containing those ingredients which may be extracted by suitable menstrua, the second such as resist the action of all ordinary solvents.

The Soluble Constituents comprise both *Inert* and *Active Principles*, the inert being chiefly starch, gum and pectin, which may be readily separated by water. The active principles are alkaloids, acids, salts, glucosides and other neutral principles, volatile oils, resins, etc. Some few of these may be extracted by Water alone (*e. g.*, Morphine), and in some cases the addition of acids or alkalies to the water will effect the chemical solution of many ingredients which are insoluble in water alone. As a rule, however, Alcohol is the most generally applicable of all simple solvents, but from its hardening the cell-membranes instead of softening them it prevents the osmosis of their contents. Drugs subjected to alcoholic or ethereal menstrua should have their cells thoroughly broken or torn, so that the solvent may be brought into actual contact with the principles contained in them. The degree of disintegration required depends upon the size of the cells, ducts, tubes, intercellular spaces, etc., in which the active principles are enclosed. A very finely powdered state is however open to objection from the packing of the particles together into an almost impenetrable mass when treated by the solvent. The average size of vegetable cells is about $\frac{1}{800}$ of an inch, while resin cells and other cavities are larger, averaging perhaps about $\frac{1}{100}$ inch. The Pharmacopœia prescribes in each instance the degree of fineness of the powdered drug employed in making certain of its preparations, or its bruising, slicing, etc., when such operations will answer. [Compare the article on Comminution in the following section.]

Alkaloids are active, nitrogenous principles existing in plants, from which they are extracted by chemical art. They are organic bases, combining with acids to form crystalline salts without the production of water. They are regarded as compound ammonias, that is to say, one or more atoms of H in ammonia (NH_3) are in them replaced by various radicals; and they may be considered to be products of albuminous decomposition in the plant-cells during the process of growth. Like ammonia, they all contain N, with C and H; most of them also contain O, though a few are devoid of the latter element, and occur as oily liquids, namely—Nicotine, Coniïne, Sparteine, Piperidine, Lupuline, Lobeline, Muscarine and Pilocarpine. Alkaloids are alkaline in reaction, the solid ones (except Berberine) are colorless; they are sparingly soluble or insoluble in water, but readily soluble in alcohol; while their salts are more soluble in water than in any other liquid. Their solutions are intensely bitter. They are easily decomposed by alkalies or alkaline carbonates; and are precipitated from their solutions by a solution of Iodine in Potassium Iodide, by Potassio-mercuric Iodide, and by Picric, Phospho-molybdic and Phospho-tungstic Acids. They generally have a powerful physiological action. They are closely related to *Pyridene*, and some of them may be synthetically prepared from pyridene bases. The names of alkaloids terminate in Latin in **—ina**, in English in *—ine*.

Of the alkaloids 15 are official, under either their own names or those of their salts, besides Veratrine, which is described as a mixture of alkaloids. Of the official salts of alkaloids there are 10 Sulphates, 6 Hydrochlorates, 3 Hydrobromates and 1 each Bisulphate, Acetate, Salicylate and Valerianate. The official alkaloids are as follows, viz.:—

Apomorphina, (Apomorphine).
Atropina, (Atropine).
Caffeina, (Caffeine).
Cinchonina, (Cinchonine).
Cinchonidina, (Cinchonidine).
Cocaina, (Cocaine).

Codeina, (Codeine).
Hyoscina, (Hyoscine).
Hyoscyamina, (Hyoscyamine).
Morphina, (Morphine).
Physostigmina, (Physostigmine).
Pilocarpina, (Pilocarpine).
Quinina, (Quinine).
Quinidina, (Quinidine).
Strychnina, (Strychnine).
Veratrina, (Veratrine).

Unofficial but Important Alkaloids, are the following, viz.:—

Aconitina, (Aconitine).
Berberina, (Berberine).
Brucina, (Brucine).
Colchicina, (Colchicine).
Coniïna, (Coniïne).
Curarina, (Curarine).
Duboisina, (Duboisine).
Emetina, (Emetine).
Gelsemina, (Gelsemine).
Homatropina, (Homatropine).
Muscarina, (Muscarine).
Pelletierina, (Pelletierine).

Glucosides are organic bodies belonging to the group of *Neutral Principles* existing in plants; which, when acted upon by acids or certain ferments, split up into *Glucose* and other substances (alcohols, aldehydes, phenols), different in each case. Few, if any, of these compounds, contain any N,—but among them are some very active agents. The official glucosides number six, and like other neutral principles, are designated by titles which end, in Latin in —**inum**, in English in —*in*, viz.:—

Chrysarobinum, (Chrysarobin).
Elaterinum, (Elaterin).
Glycyrrhizinum, (Glycyrrhizin).
Picrotoxinum, (Picrotoxin).
Salicinum, (Salicin).
Santoninum, (Santonin).

Besides these, there are several other substances recognized by pharmacopœial names which terminate in —**inum**, —*in*, but which have no relationship to the group of Glucosides. They are the following, viz.:—

Aloinum, (Aloin),—a neutral principle from Aloes.
Benzinum, (Benzin),—a purified distillate from Petroleum.
Benzoinum, (Benzoin),—a balsamic resin from *Styrax Benzoin*.
Chinoidinum, (Chinoidin),—a mixture of alkaloids from Cinchona, no longer official in the U. S. Phar.
Glycerinum, (Glycerin),—a liquid obtained by the decomposition of vegetable or animal fats or fixed oils.
Lupulinum, (Lupulin),—the glandular powder of the Hop plant.
Naphtalinum, (Naphtalin),—a hydrocarbon obtained from coal-tar.
Pancreatinum, (Pancreatin),—a mixture of enzymes from the pancreas of the hog.
Pepsinum, (Pepsin),—a ferment from the glandular layer of the stomachs of healthy pigs.
Piperinum, (Piperin),—$C_{17}H_{19}NO_3$,—a neutral principle obtained from pepper.
Pyroxylinum, (Pyroxylin),—Soluble Gun-cotton.
Resorcinum, (Resorcin),—$C_6H_4(OH)_2$,—a diatomic phenol.

The Insoluble Constituents are Cellulose, Lignin and Sclerogen, which make up the cell-walls of vegetable substances, and are extremely intractable.

WEIGHTS AND MEASURES.

The working formulæ of the U. S. Pharmacopœia of 1880 were constructed on the system of parts by weight for all articles, whether solids or fluids, except in the case of fluid extracts, for which the metric weights and measures were employed. On this system it really made no difference what unit of weight was adopted in official pharmacy. The pharmacopœia of 1890 has, however, in most cases employed definite weights for solids, and measures for liquids, in terms of the metric system. In certain cases, where weighing is decidedly more convenient, or where the product is adjusted to a percentage by weight which would be rendered uncertain if the ingredients were taken by measure, liquids are ordered to be weighed. And in some cases (Aqua Destillata, Aqua Aurantii Florum, etc.) the quantities are directed simply by volume. In most cases, therefore, *solids* are officially directed to be *weighed by grammes*, and *liquids* to be *measured by cubic centimeters*. At the same time, however, the weights and measures generally used by physicians in prescribing, and by pharmacists in dispensing medicines, are, and will doubtless continue to be, in the United States, those of the Apothecaries' or Troy System of weights, (having 480 grains to the ounce and 5760 grains to the pound); and the Wine Measure. The drachm (60 grains) and the scruple (20 grains), are intermediate units of weight which are still used, but are becoming obsolete.

The units of the Wine Measure are the minim (♏), which in water at its maximum density equals gr. 0.95; the fluidrachm (60 minims), and the fluidounce (8 fluidrachms or 480 minims). The signs used to denote these units are ♏ minim, ℈ scruple, ʒ drachm, ℥ ounce, and in the case of liquids an f to denote fluid is often placed before the sign, thus fʒ for fluidrachm, f℥ for fluidounce. The relations between these units of weight and measure are as follows:—

Measure.		*Weight.*	*Weight.*		*Measure.*
♏ j, One minim	=	0.95 grains.	grain j	=	1.05 minims.
fʒ j, One fluidrachm	=	56.96 "	ʒ j	=	63.20 "
f℥ j, One fluidounce	=	455.69 "	℥ j	=	505.60 "

Table of Troy or Apothecaries' Weight.

Pound.		Ounce.		Drachm.		Scruple.		Grain.
Libra.		*Uncia.*		*Drachma.*		*Scrupulus.*		*Granum.*
℔		℥		ʒ		℈		gr.
1	=	12	=	96	=	288	=	5760
		1	=	8	=	24	=	480
				1	=	3	=	60
						1	=	20

Table of Apothecaries' or Wine Measure.

Gallon. *Congius.*		Pint. *Octarius.*		Fluidounce. *Fluiduncia.*		Fluidrachm. *Fluidrachma.*		Minim. *Minimum.*
C.		O.		f℥		fʒ		♏
1	=	8	=	128	=	1024	=	61440
		1	=	16	=	128	=	7680
				1	=	8	=	480
						1	=	60

The British Pharmacopœia recognizes only the Imperial Standard (avoirdupois) weights, having 487½ grains to the ounce, 16 ounces to the pound (instead of 12), and 7000 grains to the pound; and the Imperial Measure, having 20 ounces to the pint (instead of 16, as with us).

Table of British Pharmacopœial Weight.

Troy grain, Avoirdupois ounce and pound.

Pound. *Libra*		Ounce. *Uncia.*		Grain. *Granum.*
℔		oz.		gr.
1	=	16	=	7000
		1	=	437½

The Troy ounce contains 42½ grains more than the avoirdupois ounce, but the Troy pound contains 1240 grains less than the avoirdupois pound. The grain is the only unit common to both.

Table of British Imperial or Pharmacopœial Measure.

Gallon. *Congius.*		Pint. *Octarius.*		Fluidounce. *Fluiduncia.*		Fluidrachm. *Fluidrachma.*		Minim. *Minimum.*
C.		O.		floz.		fldr.		min.
1	=	8	=	160	=	1280	=	76800
		1	=	20	=	160	=	9600
				1	=	8	=	480
						1	=	60

The Metric, or Decimal System of Weights and Measures, is now the official system in the United States, having been adopted throughout the last revision of the U. S. Pharmacopœia. It is in general use on the continent of Europe, and is employed by French and German physicians in this country. Its three standard units are as follows, viz.:—

A Meter, the standard unit of linear measure and also of the whole system, is the ten-millionth part of the quadrant of the earth, *i. e.*, the forty-millionth part of the earth's circumference around the poles. One-tenth of the Meter is the Decimeter, one-hundredth is the Centimeter, and one thousandth is the Millimeter.

A Liter, the unit of measure of capacity, is the volume of one kilogramme of pure water at the temperature of its maximum density, *in vacuo*. Theoretically, the Liter is equal to one cubic decimeter, or 1000 cubic centimeters. *Per contra* one-thousandth of a Liter is the Milliliter (or Cubic Centimeter), which measure of pure water at its maximum density weighs one Gramme.

A Gramme, the unit of weight, is the weight of the one-thousandth part of a liter of water at its maximum density. Its tenth is the Decigramme, its hundredth is the Centigramme, and its thousandth part is the Milligramme.

The metric measures above noted are those used chiefly in pharmaceutical practice, but the system embraces many other terms of increase which are set forth in the following table:—

10000	Myriameter.	10000	Myrialiter.	10000	Myriagramme.
1000	Kilometer.	1000	Kiloliter.	1000	Kilogramme.
100	Hectometer.	100	Hectoliter.	100	Hectogramme.
10	Dekameter.	10	Dekaliter.	10	Dekagramme.
1	**Meter.**	1	**Liter.**	1	**Gramme.**
.1	Decimeter.	.1	Deciliter.	.1	Decigramme.
.01	Centimeter.	.01	Centiliter.	.01	Centigramme.
.001	Millimeter.	.001	Milliliter, or Cubic Centimeter.	.001	Milligramme.

The relations between the Metric Weights and Measures and the Apothecaries' are as follows, viz.:—

1 meter = 39.370432 inches.
1 liter = 2.113433 pints.
1 gramme = 15.43234874 grains.
1 grain = 0.06479895 gramme.
1 minim = 0.061613 cubic centimeter.

The Metric System is making way but slowly in this country although its progress is aided by every process of forcing which scientific bodies can bring into action, and it remains to be seen how much its adoption in the last edition of the U. S. Pharmacopœia will influence the medical profession in its favor. With all the influence brought to bear in its favor it certainly has not yet been adopted by any considerable proportion of native-born and home-educated physicians and pharmaceutists. Its chief disadvantage is one which is inherent to any decimal system, viz.—that the number ten cannot be divided more than once without producing a fraction. This is partly compensated for by the practice of dividing five into the three parts of 2, 2 and 1, and on this principle metric weights are usually constructed.

In writing or reading prescriptions it is sufficiently accurate to consider a gramme as equivalent to 15 Troy grains, and a cubic centimeter (milliliter) as equivalent to 15 minims, or one-fourth of a fluidrachm. All other terms, units or prefixes belonging to the metric system may be wholly ignored by the physician and the pharmacist. The term gramme, when abbreviated, is written Gm.; and the term cubic centimeter, when abbreviated, is written Cc. In expressing quantities by weight or by measure, in writing, in terms of the metric system, the common or Arabic numerals are used, and are always placed *before* the terms or abbreviations designating the units, thus, 2.50 Gm., 30 Cc. When Apothecaries' Weight is employed, the numerals are always to be placed *after* the sign or symbol designating the unit, and in Roman characters, thus: gr. x, ℈ij, ʒjss, ℥vj. The decimal point after the figure representing the number of grammes or cubic centimeters should be replaced by a line, in order to avoid such errors as might arise from the misplacement of a point, the dropping of a drop of ink or the intrusion of a fly-speck, which might prove serious in many cases.

Approximate or **Domestic Measures** become necessary in apportioning doses for a patient, when liquid medicines are used. Of these the measure most commonly employed in the teaspoonful, which is generally taken as equivalent to a fluidrachm, though in most cases as now manufactured the teaspoon contains about 75 minims, or 25 per cent. more than the theoretical quantity. The dessertspoonful is about equal to 2 teaspoonfuls, and the tablespoonful to about 4 teaspoonfuls or f℥ss, while the wineglass is supposed to contain about f℥ij. The use of graduated medicine glasses is strongly recommended instead of the above approximate measures. They may be obtained at a trifling cost in any well-stocked drug store.

Drops (Guttæ) are very variable in size, though popularly supposed to equal minims, the variations in their relative dimensions being due to the viscidity of the liquid, the shape and surface of the orifice from which they escape, and sundry other circumstances. The Syrups and Mucilages produce large drops, while Bromine, Chloroform and other heavy mobile liquids produce very small ones. These differences are well illustrated in the following table, which gives the number of drops in a fluidrachm of several liquids of certain classes. [See the Appendix for a fuller table.]

Syrupus Acaciæ, 44.
Syrupus Scillæ, 75.
Aqua, 60.
Liquor Potassæ, 62.
Liquor Hydrargyri Nitratis, 131.
Acetum Opii, 90.
Vinum Opii, 100.
Tinctura Opii Deodorati, 110.
Tinctura Opii Camph., 110.
Tinctura Opii, 130.
Tinctura Iodi, 148.
Tinctura Aconiti, 146.
Alcohol Dilutum, 137.
Alcohol, 146.

Oleum Ricini, 77.
Oleum Copaibæ, 123.
Oleum Juniperi, 148.
Spiritus Camphoræ, 143.
Spiritus Chloroformi, 150.
Ext. Digitalis Fluid., 134.
Ext. Ipecac. Fluid., 120.
Ext. Cinchonæ Fluid., 138.
Ext. Zingiberis Fluid., 142.
Ext. Buchu Fluid., 150.
Ext. Hyoscyami Fluid., 160.
Æther, 176.
Bromum, 250.
Chloroformum, 250.

Specific Gravity is the relative weight of equal bulks of different bodies. The specific gravity of water at a certain temperature (generally 59° F.) is taken as 1, and that of all other substances is expressed in terms of this unit. The Pharmacopœia gives very complete tables of percentages and specific gravities of Alcohol, Ammonia Water, Acetic, Hydrobromic, Hydrochloric, Nitric, Sulphuric and Phosphoric Acids, and aqueous solutions of Potassa and Soda. The specific gravity of any substance is expressed by the quotient obtained by dividing the weight of a given measure of the substance by the weight of an equal measure of water. In pharmacy the specific gravity of solids is not of any importance, but that of liquids is a matter of constant value, and is determined in most cases by means of a specific gravity bottle or by a hydrometer, instruments which are described in any standard work on chemistry or physics. Modifications of the hydrometer with scales adapted to particular work are the urinometer, saccharometer, lactometer, etc.

Specific Volume is the relative bulks of equal weights of different bodies. In pharmacy it means the volume of the weight of a liquid compared with the volume of an equal weight of water at 59° F. The specific volume of a body is therefore inversely as its specific gravity, and is expressed by the quotient obtained by dividing unity by the specific gravity. $\frac{1}{\text{sp. gr.}} = \text{sp. vol.}$ and therefore $\text{sp. gr.} \times \text{sp. vol.} = 1$.

A table of the specific gravity and specific volume of several liquids will be found in the Appendix.

PRESCRIPTIONS.

Extemporaneous Prescriptions are formulæ written by the physician on the instant (*ex tempore*) to meet the requirements of individual cases. A prescription should begin with the name of the person for whom it is designed, and the date on which it is written. Then follows the Latin word *Recipe*, usually abbreviated to the sign ℞, and signifying "Take," or "Take thou;" next the names and quantities of the ingredients to be used, which are also expressed in Latin; then the directions to the compounder, followed by the directions to the patient, the last being now usually expressed in English; and finally the signature of the prescriber.

A prescription then consists of four parts, viz.—the

Superscription,—consisting of the name of the party, the date and the sign ℞.
Inscription,—the body of the prescription, which may consist of the—
  Basis,—or chief, active ingredient.
  Adjuvant,—to assist the action of the basis.
  Corrective,—to correct some injurious quality of the other ingredients.
  Vehicle or Excipient,—giving it a suitable form.
Subscription,—the directions for the compounder, usually expressed in contracted Latin.
Signature,—the instructions for the guidance of the one administering the medicine, in English, followed by the signature of the prescriber.

A prescription may, however, contain the base alone, or the base with the adjuvant, or the base with a simple vehicle or diluent, etc. A single ingredient may serve a double or treble office, as the Syrupus Rhei Aromaticus with Quinine, in which case the syrup serves as an adjuvant to increase the action of the quinine, as an excipient to cover the taste, and as a vehicle to facilitate the administration of the dose directed. The basis may not need any aid in doing its work, and may require no corrective of its action nor any special vehicle. On the other hand there is no limit to the number of ingredients which may be used, provided the prescriber has a clear idea of something to be accomplished by each one, and also provided that there is no chemical or medicinal incompatibility between them. In olden times prescriptions were very complex, and contained a great many curious and incongruous ingredients. As Dr. Piffard well says "the tendency of the present age is toward mono- rather than poly-pharmacy, and prescriptions with the orthodox *adjuvans* and *corrigens* are less frequently seen than formerly." There is danger, however, in carrying this simplicity too far, for there is no doubt but that proper combinations of medicines will often produce effects for the patient's good, which could not be obtained from the use of any one remedy.

An example will perhaps make the foregoing analysis more comprehensive, and at the same time serve to indicate the style of abbreviation usually employed. The following formula is an adaptation of that of the Pharmacopœia for the Compound Infusion of Senna, or the old-time "Black Draught," approximate weights and measures being substituted for the pharmacopœial ones:—

	For Mrs. Steele. *July 6th, 1886.* *Recipe*, Take,—	SUPERSCRIPTION.
(Basis.)	*Sennæ, semiunciam,* Of Senna, half an ounce; *Magnesii Sulphatis,* Magnesium Sulphate;	INSCRIPTION.
(Adjuvant.)	*Mannæ, ana unciam unam,* Manna, of each an ounce;	
(Corrective.)	*Fœniculi, drachmam unam,* Of Fennel, one drachm;	
(Vehicle.)	*Aquæ Bullientis, fluiduncias octo,* Of Boiling Water, eight fluid ounces.	
	Macera per horam in vase clauso, deinde cola. Macerate for an hour in a closed vessel, then strain.	SUBSCRIPTION.
	Signa, Mark, or Write thus—*A wineglassful every four hours till it operates.* *T. F. Wood, M.D.*	SIGNATURE.

Abbreviated in the style usual with physicians the above prescription would read as follows, viz.:—

For Mrs. Steele. *July 6, 1886.*
℞.
Sennæ, ℥ss
Magnes. Sulph.,
Mannæ, aa ℥j
Fœniculi, ʒj
Aq. Bull., f℥viij
Mac. per hor. in vase clauso, deinde cola.
Sig.—A wineglassful every four hours till it operates.
Wood.

The above is given as an example of an ordinary compound prescription, but as the result is nearly identical with an official preparation, we might write the prescription simply as follows:—

℞. *Infusi Sennæ Compos.*, ℥viij.

and this is the manner of prescribing the official compound preparations. It will be noticed that the term "basis" in the analysis of the formula covers two ingredients; but either of the two might be considered the principal agent, and the other one classed as an adjuvant.

As Pareira says, "These four parts of a formula are intended to accomplish the object of Asclepiades, *curare cito, tute et jucunde;* in other words to enable the basis *to cure quickly, safely, and pleasantly.*

The Principles of Combination are so well laid down by Dr. H. C. Wood, that his words are appended *verbatim*, as follows:—

> The art of combining medicines is not a difficult one; but in practice certain principles should not be lost sight of. Chief of these are, to prescribe as few remedies as possible, and to use no powerful drug without a very distinct idea of what it is intended to do. Whenever it is desired to give a powerful remedy in increasing doses until its physiological effect is produced, it should always be given by itself. Thus, it may be necessary to give Arsenic so as to impress the system, at the same time that Iron is indicated; but the two remedies should be given separately, so that the dose of either can be increased or diminished independently of the other.
>
> The principles of combination formulated below were long ago enunciated by Dr. Paris, but are to-day as imperative as ever. Medicines are combined—
>
> *First.* To augment, correct, or modify the action of a medicine. Thus, purgatives act much more kindly when a number of them are united together. The chief reason of this probably is, that as different remedies affect different portions of the gut, the whole intestine is best reached by a union of the diverse substances. It may take an intense irritation of the mucous membrane to purge as actively as does a mild irritation of both the mucous membrane and the muscular coat.
>
> There are powerful medicines which act similarly upon some parts of the organism but dissimilarly upon other parts. By combining such remedies powerful effects can be obtained at the points where the two lines of action cross each other, without influencing to a great extent other portions of the system. Thus, Chloral produces sleep by its action upon the brain, and also has a distinct influence upon the heart, but none upon the intestinal tract. Morphine acts upon the brain, and does not influence the heart, but has a powerful effect upon the intestinal tract. By combining Chloral and Morphine we get an overwhelming conjoined influence upon the brain in producing sleep with the least possible disturbance of the heart and of the intestinal tract.
>
> *Second.* To obtain the joint action of two or more diverse remedies. Thus, in a cough mixture Morphine may be included to quiet the cough, whilst Ipecacuanha and Squill (in accordance with the first principle) are added to affect the mucous membrane. The application of this principle requires caution, or the practitioner will be led into that chief abomination—polypharmacy. It is worse than futile to attempt to prescribe for every symptom. It is the underlying cause of the disorder or the under-stratum of bodily condition which must be sought out and prescribed for simply.
>
> *Third.* To obtain a special combination, which is really a new remedy, or which experience has shown acts almost as a new remedy. Thus, when to Iodide of Potassium in solution Corrosive Sublimate is added, a new chemical compound is formed, which experience has shown to be of great value in syphilitic diseases. Griffith's antihectic mixture is another instance of the use of chemical changes, the Proto-carbonate of Iron being formed out of the Sulphate of the metal and the Carbonate of Potassium. In the famous

Dover's powder no chemical change occurs, but the ordinary action of Opium upon the skin is so enhanced that the combination may be looked upon almost as a new remedy.

Fourth. To afford a suitable form. Thus, Acacia is added to make an emulsion, or Confection of Rose to make a pill. In the choice of excipients care should be exercised to select a substance free from medical properties, having no chemical incompatibility with the medicinal agent, and of suitable physical character. Bread crumbs often make a good basis for pills; but with Nitrate of Silver they are chemically incompatible, on account of the chlorides in them. When writing a prescription, the utmost care should be taken to use such excipients that the combination should not only be attractive to the eye, but also as little repulsive to the palate as may be. Whenever possible, the pill-form should be employed with bitter or disagreeable medicines. The pill may be readily coated with silver-foil; tonic pills may be coated with Iron by shaking or rolling them in Ferri Pulvis while soft and sticky. Sugar-coated pills and "compressed pills" are apt to get so hard and insoluble that their use requires caution. In regard to mixtures, flavoring oils should be freely used, and the power of Glycerin to conceal the disagreeable taste of many substances should be remembered. (*Therapeutics, 7th edition, page 108, et seq.*)

In Writing an Extemporaneous Prescription, the first step is to put down the superscription, consisting of the name, date, and the sign ℞. Next the name of each ingredient should be written in Latin and in the genitive case, each one on a separate line. Then the quantity of each article sufficient for one dose should be mentally determined and multiplied by the number of doses which the mixture is to contain, and the result set down in signs and Roman numerals. The directions to the pharmacist and patient being added, and the prescriber's name or initials affixed, the prescription is completed; but when very active agents are used, it is a good plan to go over the calculations a second time before letting it leave the hands of the person most responsible for its action. For pills or powders the same process should be employed, slightly varied according to the requirements of each case. Frequently the ingredients and quantities for but one pill, powder or suppository are named, with instructions to make a certain number after the formula. When an unusually large dose of any poisonous drug is prescribed, it is customary to underline the quantity, so as to call the attention of the compounder to the fact that the prescriber is aware that the dose is above the average.

There is no royal road to prescription-writing; practice, care and knowledge of the whole subject is necessary to enable one to turn out habitually those elegant prescriptions which are properly termed "magistral," being the work of a *magister*, or master of his business. A fair knowledge of the Latin language is a *sine qua non* to every professional man, but especially to the physician. It is pitiable to see a Doctor write ignorantly of even the genitive-case endings of the drug-names which he uses. The teaching of Latin is not within the scope of this work, and hence this part of the subject will be dismissed with the advice to the physician who is ignorant of that language to write his prescriptions wholly in English if he cannot write them in decent Latin.

Writing a Metric Prescription. The simplest rule for writing a prescription in metric terms by one who is not practiced in the use of the system, is the following, viz. :—

Write as though prescribing but one dose of each ingredient in grains or minims and decimals thereof; then substitute the term "grammes" or "cubic centimeters" for grains or minims, and the prescription is correct for 15 doses in metric terms.

Of course, when writing for a mixture or solution, the proper quantity of vehicle must be added to complete the one dose, and must also be expressed first in grains or minims. For example,—

	One dose.	15 doses metric.	
℞. Quininæ Sulphatis,	gr. j,	1	
Strychninæ Sulph.,	gr. $\frac{1}{64}$ or 0.016,		016
Ext. Glycyrrhizæ Fl.,	♏ iv,	4	
Syrupi,	♏ lx,	60	

This gives a two-ounce mixture approximately, of which the dose would be a teaspoonful.

	One dose.	15 doses metric.	
℞. Quininæ Sulphatis,	gr. j,	1	
Massæ Ferri Carb.,	gr. ij,	2	
Ext. Nucis Vomicæ,	gr. ¼ or 0.25,		25.

Ft. pil. no. xv. Sig.—One pill thrice daily after meals.

The above rule will answer for all liquids except those which are very heavy (as Syrups and Chloroform), or very light (as Ether). Measures may be entirely discarded, and all fluid quantities expressed in grammes. The average drop of water may be considered equivalent to 0.05 cubic centimeter (or gramme), the average teaspoonful to 5 Cc., the tablespoonful to 20 Cc., the Troy ℥ to 30 grammes, the fluidounce to 30 Cc., and 8 fluidounces to 250 Cc.

In prescribing Syrups or Chloroform, each Troy fluidounce should be reckoned at something more than 30 grammes—say 40; and if this be done, the difficulty of converting one scale into the other will be obviated. As to Syrups, Chloroform, etc., the following table shows the actual weight in grammes of each fluidounce of the substances named :—

Fluid Oz.		Water. (Grammes.)	Tinctures. (Grammes.)	Syrup. (Grammes.)	Chloroform. (Grammes.)	Ether. (Grammes.)
℥ i.	=	29.52	28.00	38.00	43.70	22.14
℥ ii.	=	59.04	56.00	76.00	84.40	44.28
℥ iv.	=	118.08	112.00	152.00	174.80	88.56
℥ viii.	=	236.16	224.00	304.00	349.60	177.12

A table of equivalents between Apothecaries' and Metric Weights and Measures will be found in the Appendix.

Abbreviations, though very commonly used by physicians in prescribing, are a source of much annoyance to the compounder, and frequently one of great danger to the patient. Physicians who never knew anything of the Latin grammar, or those who have forgotten its rules, are very apt to use abbreviations to conceal their ignorance of case-endings. Many others use them through sheer laziness, and some from force of habit. The educated and conscientious man will take pride in turning out a full and clear prescription, free from cabalistic letters and all elements of uncertainty. In the Appendix will be found a list of the Latin terms used in prescriptions, with the abbreviations in vogue, and the English meanings. Ambiguous contractions may result fatally to the patient, as is readily seen by studying the following list, which gives a few examples of the dangers of careless abbreviation :—

Acid Hydroc.—may mean	Acidum Hydrochloricum. Acidum Hydrocyanicum.
Aconit.	Aconitine. Aconitum.
Ammon. . . .	Ammonia. Ammoniacum.
Aq. Chlor. . . .	Aqua Chlori. Aqua Chloroformi.
Aq. Fontis. . .	Might easily be read Aqua Fortis.
Chlor.	Chlorine. Chloral. Chloroform.
Hyd. Chlor. . .	Calomel. Corrosive Sublimate. Hydrate of Chloral.
Hydr.	Hydrargyrum. Hydras. Hydriodas. Hydrochloras. Hydrocyanas.
Sod. Sulph. . .	Sodium Sulphate. Sodium Sulphite. Sodium Sulphide.
Sulph.	Sulphur. Sulphide. Sulphate. Sulphite.
Zinci Phos. . .	Zinc Phosphate. Zinc Phosphide.

Prescription Blanks. After many years' experience in prescribing on blanks furnished by druggists, the writer has come to the conclusion that it is much better, for many reasons, for the physician to have his own blanks, without the address of any drug-store thereon. These blanks should be furnished with stubs on which to write the prescription at first in rough, afterwards copying it out cleanly on the main blank. A careful prescriber always writes a formula twice before letting it go out of his hands. If he does the first writing on the stub of a book of blanks he will always have a copy of such prescription in his possession, for which he will often be thankful. The blank used by the writer measures 4¼ inches by 3¼, joined by a perforated edge to a stub 3¼ inches by 2½ inches. On the main blank the physician's name and address are printed, together with his office-hours, and a place for number and date, also the sign ℞., and a line for signature. On the stub there are printed the words, "*Copy of Prescription No.* . . . . 189 . . *For* . . . . ."

These blanks are bound up in books of 100 each, with a flexible morocco cover, from which the book of stubs may be slipped and a fresh book inserted as required. The size is ample for all ordinary requirements, and permits of the book being carried in the breast-pocket.

Renewals.—It would be advisable for physicians to always write the words "*Non Repetatur*," or some similar direction, on all prescriptions which should not be repeated without their sanction. By so doing they would doubtless cut off a good many renewal charges from the receipts of druggists who would fear the legal consequences of disobeying the mandate. This inconvenience to the drug-seller would be more than compensated for in the protection to the drug-taker, who too frequently carries in his pocket-book a stock of receipts for his various complaints; and in protection to the physician, who by giving up the dispensing of his own medicines has placed it in the power of the druggist to connive at a direct robbery of the just reward of professional skill and knowledge.

It is doubtless a fact familiar to every observer, that the old-time confidential relations between the professions of physician and pharmacist have almost passed into oblivion. In fact, the tendency of pharmacy now-a-days is towards the position of a mere money-making trade, instead of in the exalted direction of a profession. The indiscriminate renewing of prescriptions, the open sale of quack nostrums and homœopathic pellets, the readiness with which counter-prescribing is indulged in, the insinuations too frequently made over the drug-counter in reflection on physicians, and many other similar practices, have caused the non-combatant profession to regard the average druggist with suspicion. If physicians boldly took the dispensing of medicines more into their own hands many of these evils would soon eliminate themselves from the drug-stores. Right here it may be said that there is nothing unprofessional or derogatory in the dispensing of his own medicines by the physician. In England it has been the universal practice for centuries in all places except the largest cities, and it has only been given up by a part of the medical profession as a matter of convenience, not as a right. The homœopaths fought for the reclamation of this practice as a right belonging to the medical profession, and succeeded in its legal establishment, but not from a worthy motive. They dispense their own medicines in order to cover up the many frauds of which they are daily guilty, and to give them the power of administering full doses of powerful drugs in a form which is apparently "homœopathic," with no tell-tale prescription on file in a drug-store to give mute but dangerous evidence against their honesty. In this way they administer several grains of Calomel or eighth-grain doses of Morphine, or correspondingly large quantities of active alkaloids, triturated with sugar of milk, or dissolved, as many of the latter may be, in alcohol. Chemistry, by isolating the active principles of plants, and furnishing them to commerce in the form of soluble salts, has enabled the homœopath to practice this fraudulent method of dispensing drugs, which the innocent and ignorant patient, who believes in the power of the minimum dose, supposes to be infinitesimal in amount. But the physician of the regular profession is too apt to think that if he adopts a practice which charlatans have appropriated to themselves, he may be classed with them by his professional competitors. Hence, many regular physicians are absolutely afraid to use such drugs as Aconite, Belladonna, Gelsemium, Arnica, Rhus, etc., all of which are official, and most of which are older in medicine than homœopathy; and avoid pocket-cases, drachm-vials, and triturations, as badges of charlatanism. It is high time that we asserted our independence in all these matters, and made use freely of those means which are recommended by our individual judgments as promotive of the best results to our patients and to ourselves. With a small stock of reliable fluid extracts, and an equally moderate supply of gelatin-coated pills and compressed tablet-triturates from the best houses, physicians could check-mate the unscrupulous practices of many druggists to a great extent, save their patients many dollars, and retain many a dollar for their own pockets, which under the present system goes to their enemies. The homœopaths understand the money part of the argument well. When their patients' medicine is exhausted, the doctor must be seen for a fresh supply, meaning of course another consultation about symptoms, a change perhaps from *Mercurius Dulcis* to *Mercurius Vivus*, and another fee. The expense is nothing, sugar of milk being cheap, and there is no prescription in the patient's pocket-book, to be renewed scores of times (paying toll however every time to the druggist), and finally to be copied by aunts, mothers, and friends, as a "sovereign remedy" for a cough, or a "really wonderful receipt" for a case of croup.

INCOMPATIBILITY.

Incompatibility may be Chemical, Pharmaceutical or Therapeutical, according as the prescribed combination results in chemical decomposition, physical disassociation or antagonistic action. In the first case the incompatibility may be unintentional or intentional on the part of the prescriber, for in many cases the result of the chemical action affords the substance desired.

Instances of intentional incompatibility are the mixtures of Calomel or Corrosive Sublimate with Limewater, producing the Black and Yellow Oxides of Mercury respectively, and commonly known as "Black Wash" and "Yellow Wash." Such a combination should not be filtered (as a novice might suppose), but should be dispensed with a "Shake-label," that the precipitate may be uniformly distributed before using.

Chemical Incompatibility generally results from neglect on the part of the prescriber of the most common chemical reactions, such as that—

1. Acids tend to combine with bases and to form salts.

2. Weak acids or bases are displaced from their combinations by stronger ones, so that salts in solution when brought together generally exchange their radicles, especially if by doing so an insoluble compound can be formed.

3. A salt in solution is easily decomposed by a strong alkali if the salt is one having a weak or volatile base.

4. A substance in solution may be decomposed by another without precipitation, the product being soluble in the solution.

5. Alkaloidal salts are precipitated from their solutions by the addition of fixed alkalies, their salts, or salts which produce insoluble compounds. Oxides of the fixed alkalies decompose salts of the metals proper, and those of the alkaloids, precipitating their bases; but the base may be soluble in an excess of the alkali.

6. Tannic and Gallic Acids and vegetable substances containing them precipitate albumen, alkaloids and most of the metallic oxides, and form inky solutions when brought into contact with the persalts of Iron. Tannic Acid precipitates gelatin.

7. Glucosides are incompatible with free acids or Emulsin.

Examples of the neglect of these principles are seen in the prescribing of Quinine Sulphate in mixture with Potassium Acetate, resulting in a voluminous precipitate of Quinine Acetate which cannot be poured from the bottle;—Vinegars or Syrups containing Acetic Acid (Syr. Allii, Syr. Scillæ) added to a solution of alkaline carbonates, causing decomposition of the latter with evolution of CO_2;—the addition of Liquor Potassæ to a solution of Ammonia-alum, setting free gaseous ammonia;—the mixing of Strychnine Sulphate and Potassium Bromide in solution, causing the decomposition of the alkaloid sulphate and precipitation of strychnine;—preparations of Cinchona with salts of Iron, forming an inky tannate of iron; Elixir of Chloral with alkalies, causing the elimination of chloroform and its subsequent evaporation, etc., etc.

The following table shows the most important instances of Solutions which Mutually Precipitate each other, the letter P meaning "forms a precipitate with":—

Table of some Mutually Precipitant Solutions.

Solutions of—	Alkaloidal solutions (generally).	Metallic solutions (generally).	Solutions of Lead Salts.	Solutions of Silver Salts.	Solutions of Calcium Salts.	Solutions of Magnesium Salts.	Solutions of Albumen.	Solutions of Gelatin.
Alkalies,	P	P	P	P	P	P	. . .	. . .
Tannic Acid,	P	P	P	P	. . .	. . .	P	P
Carbonic Acid and Carbonates,	P	P	P	P	P	P		
Sulphuric Acid and Sulphates,	. . .	. . .	P	P	P	. . .		
Phosphoric Acid and Phosphates,	P	P	P	P	P	P		
Boric Acid and Borates,	P	P	P	P				
Hydrochloric Acid and Chlorides,	. . .	. . .	P	P				
Hydrobromic Acid and Bromides,	. . .	. . .	P	P				
Hydriodic Acid and Iodides,	P	. . .	P	P				
Sulphides,	. . .	P	P	P				
Arsenical Preparations,	. . .	P	P	P				
Albumen,	. . .	P	P	P				

Insoluble Salts.—The following more or less Insoluble Salts will be formed whenever the materials of which they are composed are brought together in solutions: the Hydrates, Carbonates, Phosphates, Borates, Arsenates and Tannates of most earthy and heavy metals and alkaloids, and the metallic Sulphides; the Sulphates of Calcium and of Lead, and the subsalts of Mercury; the Chlorides, Iodides, and Bromides of Bismuth, Silver, Lead, and subsalts of Mercury; the Iodides of Quinine, Morphine, and most alkaloids.

Instances are—Limewater or Aromatic Spirit of Ammonia with Tincture of Chloride of Iron, or solutions of Mercury salts, or neutral solutions of Quinine or Morphine salts.

Ammonium, Potassium, and Sodium Carbonates or Bicarbonates with Limewater.

Solutions of Magnesium Sulphate, Alum, Zinc Acetate, or Sulphate, with solutions of salts of Iron, Manganese, Bismuth, Antimony, Lead, and most alkaloids.

Ammonium or Sodium Phosphates with solutions of Iron salts, with Limewater, solution of Magnesium Sulphate, of Alum, etc.

Liquor Potassii Arsenitis with Limewater, with solutions of basic salts of Iron, and of neutral salts of Quinine and Morphine, etc.

Solutions, Decoctions, Tinctures, and Extracts containing Tannic Acid with solutions of salts of Iron, Mercury, Antimony, Lead (as also with solutions containing albuminous substances and Gelatin).

Limewater with solutions of Quinine or Morphine Sulphates.

Solutions of Lead Acetate with Zinc Sulphate or Alum.

Sodium Chloride with Silver Nitrate.

Morphine Hydrochlorate with Lead Acetate.

Alkaline Iodides or Bromides with Bismuth Carbonate or Subnitrate, with Lead Acetate, with Subchloride of Mercury, or with neutral solutions of Quinine, Morphine, and Strychnine salts.

Explosive Compounds result from the admixture of powerful oxidizing agents with substances which are readily oxidizable. The most important members of these two classes are as follows:—

Oxidizers.

Nitric Acid. Chromic Acid.
Free Hydrochloric Acid.
Nitro-hydrochloric Acid.
Potassium Chlorate.
Potassium Permanganate.

Oxidizable or Combustible.

Glycerin, Sugar, Alcohols.
Oils and Ethers.
Sulphur and Sulphides.
Dry Organic Substances.
Phosphorus.

Explosions have resulted from mixing Fluid Extract of Uva Ursi with certain samples of Spirit of Nitre, Chromic Acid with *Glycerin*, Potassium Permanganate with *Glycerin*, Nitric Acid with *Glycerin*, Silver Nitrate with Creosote, Silver Oxide in pill with Extract of Gentian, Potassium Chlorate with *Glycerin* and Tincture of Ferric Chloride. Calcium Chloride triturated with Sulphur in a mortar has exploded, so also has Calcium or Sodium Hypophosphite when triturated alone. Tincture of Iodine with Ammonia forms the Iodide of Nitrogen, which is highly explosive, especially if triturated in the presence of water. Catechu and Potassium Chlorate in a dentifrice have exploded in the mouth from the friction produced by a dry tooth-brush.

Poisonous Compounds may be formed by the admixture of many substances in solution, such as—

Potassium Chlorate with *Potassium Iodide*, in solution together do not react at ordinary temperatures, but in the system they evolve a poisonous agent, probably Potassium Iodate.

Potassium Chlorate with *Syrup of Ferrous Iodide*, liberates Iodine from the Iodide in the warm stomach, causing severe gastric irritation, perhaps gastritis of dangerous degree.

Dilute Hydrocyanic Acid or *Potassium Cyanide*, with *Calomel*, forms the Bichloride and Bicyanide of Mercury, both virulent poisons;—with metallic hydrates, carbonates, sub-nitrates, or sub-chlorides, cyanides of the metals are formed which are even more poisonous than the acid itself in its usual diluted form.

Pharmaceutical Incompatibility differs from chemical incompatibility in the absence of chemical action, and is generally produced by adding one substance to another which, through differences in solubility, causes a precipitation of solid matter or a separation of part of the liquid. The constituents separated may be active and hence important, or inert and therefore unimportant.

Instances of this are—the addition of an acid to a Quinine and Liquorice mixture, resulting in precipitation of the Glycyrrhizin (relied on to cover the taste of the Quinine) by the acid; or the use of Quinine, Tincture of Ferric Chloride and Liquorice together;—or the prescribing of solutions of Chloral and Potassium Bromide with an alcoholic preparation, the Chloral separating to the top as an alcoholate, and therefore dangerously in excess for the first few doses;—or the neglect to prescribe Acacia or some other emulsifier in mixtures of an alcoholic fluid extract of a resinous body with an aqueous preparation, which would result in the separation of the resin to the surface and an overdose with the first teaspoonful.

When a fluid extract is diluted with a liquid differing in composition from those used in the fluid extracts, the gum, albumen, resin, and mucilage are often separated. In such a case as Fluid Extract of Cannabis Indica the active resin would be thrown out of solution, and floating on top might cause serious symptoms; but in many other instances the precipitate would be inert and filtration would be in order. Water is the solvent for albuminous, gelatinous, gummy, and saccharine bodies and for a large number of inorganic salts; while Alcohol is the solvent for volatile oils and resins, gum-resins, resinoids, balsams, and all drugs containing these as their active principles. The solvent power of either Alcohol or Water for their particular substances decreases in proportion to the amount of the other added.

Instances of Pharmaceutical Incompatibility.

Resinous Tinctures or Fluid Extracts with aqueous solutions.
Tincture of Guaiac with Spirit of Nitrous Ether.
Compound Infusion of Gentian with Infusion of Wild Cherry.
Compound Infusion of Cinchona with Compound Infusion of Gentian.
Essential oils with aqueous liquids in quantities exceeding 1 drop to ℥j.
Fixed oils and Copaiba with aqueous liquids (except excipients).
Tinctures made with Alcohol with those made with Diluted Alcohol.
Alcoholic Tinctures and Fluid Extracts with aqueous preparations.
Spirit of Nitrous Ether with strong mucilages.
Infusions generally with metallic salts.

Therapeutical Incompatibility arises when two agents are administered together which oppose each other in their action on the human system,—as for instance Belladonna in any form with Physostigma. But in many cases physiological antagonists are designedly prescribed together, one as a guard against the action of the other, as in the hypodermic administration of Morphine guarded by Atropine. The antagonists to each of the active medicinal agents may be found in the section on Materia Medica under their various titles; but they may be well summarized as to the most important ones in the following list.

Physiological Antagonists.

Aconitine,—Atropine, Digitalis, Strychnine.
Alcohol,—Strychnine, Chloral, Bromides.
Ammonium Chloride,—Chloral.
Atropine,—*Aconitine, *Bromal Hydrate, *Chloral, Hydrocyanic Acid, Jaborandi, Muscarine, *Morphine, Physostigmine, Phytolaccine, Pilocarpine, Quinine. [Those marked * will not prevent death from a lethal dose of Atropine, though the latter will prevent death from a lethal dose of either of them.]
Bromal Hydrate,—Atropine.
Brucine,—Chloral.
Carbolic Acid,—Atropine.
Chloral,—Ammonium Chloride, Atropine, Brucine, Calabarine, Carbolic Acid, Codeine, Physostigmine, Picrotoxin, Strychnine, Thebaine.
Chloroform,—Amyl Nitrite, Atropine.
Cocaine,—Morphine, Chloral, Amyl Nitrite.
Codeine,—Chloral.
Digitalis,—Aconite, Muscarine, Saponin, Senegin.
Gelsemium,—Opium, Atropine, Digitalis.
Morphine,—Atropine, Caffeine, Chloroform, Cocaine, Hyoscyamine, Physostigmine.
Muscarine,—Atropine.
Opium,—Atropine, Gelsemium, Caffeine, Strychnine, Amyl Nitrite.
Physostigma,—Atropine, Chloral, Morphine.
Saponin,—Digitalis.
Strychnine,—Alcohol, Chloral, Hydrocyanic Acid, Nicotine, Amyl Nitrite.
Thebaine,—Chloral.
Veratrum Viride,—Opium, Morphine.

The Dangers of Incompatibility may in a great measure be avoided by the use of the utmost simplicity in prescribing. The subject can only be glanced at within these pages, but the following simple rules may help the burdened memory of the student and the practitioner.

Never use more than one remedy at a time, if one will serve the purpose for which you are prescribing.

Never use *Strong Mineral Acids* with other agents, unless you know exactly what reaction will ensue. They decompose salts of the weaker acids, and form ethers when combined with alcohol. Never combine *Free Acids* with hydrates or carbonates.

Select the simplest solvent, diluent or excipient you know of, remembering that the solvent power of alcohol and of water for their respective substances decreases in proportion to the quantity of the other added.

Generally do not combine two or more soluble salts; for such salts in solution, when brought together, usually exchange their radicles, thereby forming an insoluble compound. [See *ante*, page 448.]

Never prescribe a drug with any of its Tests or Antidotes.

Never prescribe a *Glucoside* (as Santonin, Colocynthin, etc.), in combination with *free acids* or with a substance containing *Emulsin*, as these agents will decompose it.

Aconite should be ordered in water alone, *Mercuric Chloride* by itself in water or in simple syrup. The latter drug is incompatible with almost everything, even the Compound Syrup of Sarsaparilla being said to decompose it.

Potassium Iodide decomposes most of the metallic salts, and is one of the drugs which are best administered alone.

The following-named substances are incompatible with so many others that it is best to always prescribe them alone; they are best given in simple solution:—

Alum.
Dilute Hydrocyanic Acid.
Dilute Nitro-hydrochloric Acid.
Sulphuric Acid.
Mercuric Chloride (Corr. Sub.).
Iodine and Iodides.
Syrup of Ferrous Iodide.
Potassium Permanganate.
Potassium Acetate.
Potassium Bromide.
Tartar Emetic.
Tincture of Guaiac.
Morphine Acetate.
Morphine Hydrochlorate.
Quinine Sulphate.
Liquor Calcis.
Liquor Potassæ.
Liquor Potassii Arsenitis.
Liquor Ferri Nitratis.
Tinct. Ferri Chloridi.
Zinc Acetate.
Iron and Quinine Citrate.
Free Chlorine in Solution.
Tannic and Gallic Acids.

Silver Nitrate and *Lead Acetate* and *Subacetate*, though incompatible with almost everything, may be combined with *Opium*, the latter forming therewith a compound which though insoluble is therapeutically active as an astringent and anodyne lotion. *Silver Nitrate* with *Creosote* forms an explosive compound.

Tannic and Gallic Acids, and substances containing them (as the Astringent Bitters), precipitate albumen, alkaloids and most soluble metallic salts. They may be prescribed with the proto-salts of Iron, but not with its per-salts. *Calumba* is the best vegetable tonic to use with ferric salts, as it contains neither tannic nor gallic acids. *Tannic Acid* precipitates gelatin.

Iodine and the soluble *Iodides* are incompatible with the alkaloids and substances containing them, also with most metallic salts.

Alkalies neutralize free acids, and precipitate the alkaloids and the soluble non-alkaline metallic salts. *Oxides of the Alkalies* decompose salts of the metal proper, and salts of the alkaloids, precipitating their bases; but the base may be soluble in an excess of the alkali.

Resinous Tinctures or *Fluid Extracts*, (*e. g.*, Tinct. Cannabis Indicæ), when combined with aqueous solutions should always have Acacia or some other emulsifying agent added, to prevent the separation of the resin, which otherwise will be deposited on the sides of the bottle or will float on top of the mixture.

Tincture of Digitalis should not be mixed with aqueous or syrupy solutions, for in such cases precipitation or decomposition of the active principles may occur. This tincture is injured by admixture, and is best administered on sugar or dropped on a piece of bread.

EXTEMPORANEOUS PHARMACY.

This is the most important division of the whole subject of Pharmacy, embracing as it does the preparation and dispensing of those medicines which are designed for immediate use and which are compounded on the prescriptions of physicians. Hence it comprises the chief portion of the daily work of the pharmacist, and can only be learned at the dispensing counter and under the personal supervision of a competent master. In the following pages are given the most important of the general directions pertaining to this subject, with the object of enabling the young medical practitioner to familiarize himself with the compounding and dispensing of drugs so far as the limits of the book will admit of. The drug-store of the present day has degenerated so far from its legitimate business that ere long physicians will be compelled in self-defence to dispense their own medicines, thereby protecting themselves and their patients from the patent-medicine vending, the counter-prescribing, and the many other nefarious methods which have degraded the pharmacist from his old professional position to that of a mere trader in drugs and nostrums. The first outfit of every young doctor should include a few pharmaceutical instruments and a small stock of drugs. By the daily handling of these, the tools of his profession, he will insensibly become familiar with the technique of the art, and even if he does not continue to dispense his medicines in after years he will never regret the practical knowledge which such a course will give him.

Compounding means the mixing or preparing of the drugs ordered in a prescription, and comprises all the operations of official pharmacy together with many other manipulations which will be described in their appropriate places.

Dispensing is the operation of putting up and issuing the drugs ordered in a prescription, and may apply to the already compounded preparations of official pharmacy as well as to those prepared extemporaneously.

Filling a Prescription means a combination of operations which requires great care, undivided attention, and a special practical apprenticeship at the dispensing desk. In the following discussion of extemporaneous preparations such hints are incorporated as are particularly applicable to the compounding of each article under consideration; and they may be prefaced by a few general suggestions which will serve to point out the most approved method of dealing with this important part of the druggist's work.

The prescription should first be slowly read over in a critical spirit, but no word or action of unfavorable criticism should reach the ears or eyes of the messenger. To shrug the shoulders when scanning the items, to laugh or even smile at the phraseology, to question the person offering it as to whom it is for, or what complaint it is given for, are instances of such flagrant treason to the prescriber as would justify the most complete professional ostracism of the offender. The compounder has no business whatever with the propriety of the recipe for its purpose. It might have been given as a *placebo* for reasons eminently wise and judicious; or if not so constituted it has at least been ordered by one who is in possession of facts about which the druggist knows nothing, even if by education and experience he were competent to judge in the matter, which he seldom is. His criticism should be directed only to the dosage and the pharmaceutical compatibility of the ingredients. Even in the latter case he must remember that incompatibles are often prescribed with the view of forming another agent from the chemical reaction produced. If he thinks that there is any mistake and the drugs ordered are in any degree poisonous, it is his duty to make an excuse for delay to the messenger and at once communicate with the physician. This course, in these days of telephones, is nearly always practicable.

After reading the prescription, it is well to number it and write the label. This gives time for the label to dry, and avoids the use of blotting paper, which often mars the writing and renders the directions all but illegible.

A clearly defined method should next be decided on by which to compound the prescription. Directions for such plans of procedure will be found in the succeeding pages under the titles of the various preparations. Next, the ingredients should be carefully weighed or measured out, each one being checked off so as to avoid the danger of its being duplicated. In many cases the excipient is not specified, its choice being left to the druggist; but in all such a note should be made on the prescription to show the article used, in order that in the event of a renewal being ordered there may be no difference perceptible. No alteration or addition should ever be made which would in any degree affect the medicinal action of the prescription, or interfere with the obvious intention of the prescriber.

The labelling of the package and the numbering and filing of the prescriptions are matters of mechanical detail which are best learned at the counter. Various devices for simplifying these operations are in vogue and may be seen in any well-appointed drug-store. Poisonous articles sold by the druggists should always be labelled "Poison," and the transaction entered in a book usually required by law to be kept for that purpose; but in the case of prescriptions the word "Poison" should not appear on the package or label unless so directed by the prescriber.

Stock Solutions of the salts most frequently prescribed are kept in many establishments for convenience in dispensing. Those most generally used are the following :—

Alum,—℥ ijss in a quart of distilled water. Of this solution each fluidounce represents ʒ ss of the salt.

Potassium Bicarbonate,—℥ j in f℥ iv of distilled water; of which ℥ ss contains ʒ j of the salt.

Potassium Chlorate,—1 in 24 of distilled water, will not crystallize as the temperature changes.

Potassium Bromide,—1 in 3 of distilled water, makes a very convenient solution for dispensing purposes.

Chloral Hydrate,—1 in 1 of distilled water; of which each minim contains one grain of Chloral Hydrate.

Morphine Sulphate,—gr. xvj in ℥ j of distilled water, with a grain of Salicylic acid or 3 drops of Carbolic Acid to prevent change. Of this solution, known as Magendie's, each minim contains gr. $\frac{1}{30}$ of the salt, and ♏x contain gr. $\frac{1}{3}$. A safer solution for dispensing purposes, as it requires less mental calculation, is one of one-half the above strength, viz.—gr. viij in ℥ j, of which each fluid-drachm contains gr. j of Morphine Sulphate.

Carbolic Acid,—℥ j in f℥ iv of glycerin, makes a convenient solution which will mix with water in all proportions. ♏ivss represent gr. j of Carbolic Acid.

Tannic Acid,—℥ j in f℥ iv of glycerin, dissolved by the aid of a gentle heat. ♏ivss represent gr. j of Tannic Acid.

Rules for the Pharmaceutical Student. The following are quoted from the *Chemist's and Druggist's Diary* for 1885. They are well worth remembering.

Read through a prescription, rapidly and in a manner suggesting no suspicion or doubt.

Write directions invariably before dispensing. Avoid thus the use of blotting-paper; a good dispenser uses almost none.

If a mixture contains readily soluble ingredients, never use a mortar.

Avoid effecting solution by heat, for fear of recrystallization.

With syrups and also ingredients not water, arrange in dispensing to rinse out the measure and leave it clean; a skilled dispenser shows very little traces of his work.

Carefully clean and put away weights and scales after each operation.

Hold the scales firmly by the left hand, never lift them high above the counter, and judge of the weight as much by the indicator as by the position of the scale.

Select glass pans for scales, preferably of heavy make, and discard flimsy brass material, which corrodes speedily and becomes inaccurate.

Learn to judge of the quantity to be weighed with tolerable accuracy; train the eye as well as the hand.

If in doubt, always begin with that about which you have no doubt.

Be rapid in manipulation. Finish wrapping, tying, or sealing quickly. Slow dispensing is bad dispensing, and arises either from deficient practice or want of knowledge.

Never, when in a shadow of doubt, hesitate to ask advice from a fear of compromising your own dignity.

OFFICIAL PHARMACY.

Official Operations are those processes which are directed in the pharmacopœia to be used in the preparation of medicines. Many of them are processes which are common to both chemistry and pharmacy, as precipitation and crystallization,—while others are peculiar to pharmacy, as percolation, trituration, etc. The most important of the pharmaceutical operations are briefly described below; for full details of the various apparatus used the student is referred to the more exhaustive treatises on Pharmacy.

PHARMACEUTICAL OPERATIONS.

Carbonization is the heating of organic substances without exposure to the air until the volatile constituents are driven off, and the residue assumes the characteristic appearance of carbon.

Clarification is the separation from liquids of solid matter, which prevents their being transparent, without using filters or strainers. It may be effected by heat (as in the case of Mel Despumatum), by adding a lighter liquid, by adding albumen, gelatin, milk, or paper-pulp, by fermentation, or by subsidence of the particles in the form of a sediment through long standing.

Colation, or **Straining** is usually a very simple operation, so familiar to every one of ordinary experience as to be scarcely worth describing. The strainers are made of cotton flannel, fine muslin, gauze, woolen felt and other fabrics.

Comminution is the process by which the aggregation of the particles of a solid body is overcome, and the body is reduced to pieces of varying sizes. Its object is to increase the surface exposed to the action of solvents, and it includes the mechanical operations of cutting, rasping, grating, crushing, stamping, grinding, pulverizing, triturating, levigating, elutriating, granulating, etc. Apparatus of various kinds, as cutters, mortars and pestles, mills, etc., are used for the comminution, while spatulas are employed to loosen the particles, and sieves to sift the coarser from the finer. These last-named contrivances are of five sizes, designated by the number of their meshes to the inch, 80, 60, 50, 40, and 20, respectively permitting the passage of powders termed very fine, fine, moderately fine, moderately coarse and coarse.

Crystallization is the process which bodies undergo in passing from the liquid or the gaseous state to the geometrical forms called *crystals*.

Six systems of crystals are recognized by crystallography, which has assumed the dignity of a separate science. Bodies which are not capable of crystallization are termed *amorphous*. Every crystallizable body assumes its own peculiar form, or some other form directly derived from or related to it. The process of crystallization is affected (1) by fusion and partial cooling, as in the cases of some metals and Sulphur; (2) by sublimation, as Benzoic Acid, Mercuric Chloride, etc.; (3) by deposition from hot saturated solutions while cooling; (4) by deposition from a solution during evaporation; (5) by deposition caused by passing a galvanic current through the solution; (6) by precipitation, as in the case of the Mercuric Iodide; (7) by the addition to the solution of a substance having a strong affinity for water, as the adding of Calcium Chloride to an aqueous solution of Sodium Chloride, or Alcohol to a solution of Potassium Nitrate, or to an aqueous syrup. In a few cases amorphous solids may crystallize without undergoing liquefaction, as Sulphur, Barley-sugar, Iron or Brass wire. The methods most frequently employed are those by deposition from supersaturated solutions, and by deposition during evaporation. The more slowly the process is carried on the larger and more regular will be the crystals. The process is facilitated by use of foreign bodies as *nuclei* around which the crystals are deposited; a familiar instance being the thread in the centre of a mass of rock-candy.

The Water of Crystallization is the H_2O with which most substances combine in the act of crystallization, and the number of molecules thereof differs for each body and for the same body frequently under different conditions. *Exsiccation* is the driving off of this combined water by heat, the crystals assuming thereby the form of a dry powder. *Efflorescence* is a similar process occurring spontaneously on exposure of the crystals to the air, the effloresced portion appearing as a dry powder on the surface of the crystals. *Deliquescence*, on the other hand, is the act of absorbing water from the atmosphere, a property possessed by some substances, which are therefore said to be *hygroscopic*.

Decantation is the pouring or drawing off a supernatant liquid into another vessel. If done by pouring, a guiding-rod for the liquid to run on is an effective adjuvant; if by drawing, the *siphon* in some form is usually employed.

Decoloration, or the removal of coloring-matter from liquids or from solids in solution, is effected by the use of animal charcoal, which in small operations may be arranged in a funnel or a percolator, and the liquid placed thereon. It should not be forgotten that charcoal absorbs many other principles besides coloring-matter, especially alkaloids, bitters, and astringents, so that the process of decoloration may be one of serious injury to the efficiency of the preparation.

Deflagration is the heating of an inorganic substance with another which yields oxygen (usually a nitrate or a chlorate), the result being the decomposition of the body, with violent and sudden combustion.

Desiccation is the process of removing moisture from solids, and has for its object either the preservation of the substance, the reduction of its bulk or the facilitation of its comminution. The operation should be conducted at as low a temperature as possible. Roots, leaves and seeds are generally dried by being placed in trays of wire network and exposed to a uniform temperature in a room heated by steam. A better method is to suspend organic substances from the ceiling of an attic during warm weather; a slow process, but one which does not result in much loss of the active volatile principles. Crystals and precipitates require a higher temperature and are usually dried on a water-bath. When the water of crystallization is to be expelled, as in desiccating Alum and Ferrous Sulphate, a temperature of about 400° F. is required. In absorbing water from alcohol Potassium Carbonate and slaked Lime heated are employed, and in several instances Sulphuric Acid is the desiccator used.

Dialysis is a process by which crystallizable substances are separated from non-crystallizable ones, by suspending a solution containing both upon a porous diaphragm having its under surface in contact with water. The crystalloids pass through the diaphragm, while the non-crystalline remain above it, and are termed *colloids*. Examples of the latter class are gelatin, gum, glue, starch, dextrin, albumen and extractive matters, which are generally the inert and valueless constituents of vegetable drugs. Parchment-paper and bladders are used for the diaphragm; the whole apparatus being termed the *dialyzer*, while the water into which the crystalloids pass is called the *diffusate*.

The unofficial preparation known as Dialyzed Iron (*Ferrum Dialysatum*) is a colloidal substance obtained by treating Ferric Chloride in solution with Ammonia, whereby Ferric Hydrate is precipitated and then dissolved by agitation. The mixture being placed on a dialyzer, the crystalloids formed (Ammonium Chloride and Ferric Chloride), together with any free acid present, pass into the diffusate, leaving the neutral colloidal liquid (solution of Ferric Oxychloride) above on the septum.

Distillation consists of two processes, (1) the evaporation of a liquid, (2) the condensation of the vapor into a liquid in a separate vessel. The agent used in the first part of the operation is heat, in the second part cold. Its object is to separate mixed volatile and fixed substances, or to combine volatile substances which cannot otherwise be mixed, as in the preparation of some of the official Waters. The apparatus used is of great variety, from the simple retort and receiver to the elaborate and costly stills.

Destructive or **Dry Distillation** is a process of decomposing an organic substance by heat into volatile products, which are collected in a separate vessel, the residue being said to be carbonized. It is only employed by large manufacturers, for the preparation of Acetic and Succinic Acids, Oil of Amber, Wood Tar, etc.

Fractional Distillation is the separation by distillation of substances which are volatile at different temperatures, each being separately driven over and received in a vessel by itself. Different degrees of heat are successively employed in accordance with the volatilizing points of the substances to be obtained.

Expression is the forcible separation of liquids from solids, by subjecting them to pressure. Hand-pressure through straining-cloths may be employed, but mechanical presses are more efficient and are coming into general use. Oils obtained in this manner are called *expressed* or *fixed oils*, to distinguish them from the volatile oils obtained by distillation.

Exsiccation or Calcination is the process of depriving a solid of its moisture or other volatile constituents by the application of heat without fusion. The term *Exsiccation* is usually applied to the vaporization of the water of crystallization from a crystalline body, *Calcination* to such operations as the expulsion of carbonic acid and water from carbonates, as in the manufacture of Lime, Magnesia, etc.

Filtration is a process of straining through a medium so fine as to deliver the filtrate in transparent condition. The filters are made of paper usually, though charcoal, asbestos, sand and other articles are sometimes employed, and are supported in a funnel of glass or other material held by the ring of a retort-stand. The best filtering-paper is made in Sweden by Munktell, and is white; but a good paper for ordinary use is the "Prat Dumas White," which should always be employed for filtering alkaline or alkaloidal solutions. The gray French papers answer well enough for fluid extracts, tinctures or colored liquids, but should never be used for solutions containing free alkali.

Filtering-paper is folded by doubling a sheet upon itself, and then folding it again directly in the middle. When opened four distinct sections appear, one of which is separated from the other three, and the filter thus formed is placed in a funnel. This arrangement is known as a *plain filter*, which by repeated creasing is converted into the *plaited filter*; the latter being the form generally used in pharmaceutical operations of small extent. In large laboratories special processes of filtration are employed with apparatus of more or less complexity for hot filtration, rapid filtration, etc.

Fusion is the process of liquefying solids by the application of high heat without the use of a solvent. It is employed in making ointments, plasters, etc., in purifying resins, and for the purpose of decomposition. The degree of heat required varies from a temperature of 90° F., sufficient to melt lard in an open vessel, to one of 800° F., employed in fusing Zinc in an earthen crucible; and may be regulated by the aid of the water-, steam- or sand-bath. The two former appliances limit the degree of heat applied, while the sand-bath prevents sudden changes in the temperature. Oil-baths and glycerin baths are employed in fractional distillation on a large scale.

Granulation is a process of reducing a coarsely crystalline substance to a granular powder, by dissolving it in water and evaporating the solution with constant stirring until the product becomes perfectly dry. Many salts are thus treated for convenience in dispensing, as the Bromide, the Iodide, the Carbonate and the Citrate of Potassium. Ferrous Sulphate, though generally dispensed in the exsiccated powder, may be granulated into minute crystals by filtering an aqueous solution of it into alcohol.

Ignition in pharmacy means the process of strongly heating solids or semi-solid substances, the residue left being the product desired. It is used in the official quantitative tests for Phosphoric Acid, Ammonium Phosphate and purified Antimony Sulphide.

Incineration is the heating of organic substances with access of air until the carbon is consumed, the ashes remaining being the product desired.

Maceration is one of the processes of extracting the soluble principles from drugs, and consists in steeping or soaking the comminuted substance in a suitable liquid called the *menstruum*, generally alcohol, for a period varying from 2 to 14 days, during which it is occasionally agitated. The liquid is then poured off, the residue is expressed, and the mixed liquors are filtered. Several of the official tinctures are prepared by this method, and many others are subjected to maceration first and percolation afterwards.

Percolation or **Displacement** is a process of obtaining the soluble constituents of a substance in powder by the descent of a solvent through it. Though an ancient process for the making of lye from wood-ashes (lixiviation), it has only within the last forty years been adopted as an official process in pharmacy, and it is gradually taking the place of maceration as a means of extracting the soluble principles of drugs. The vessel used to hold the powdered drug is called the *percolator*, of which there are many forms employed by the manufacturers. The liquid used as a solvent is called the *menstruum*, and when coming from the percolator it is termed the *percolate*. The U. S. Pharmacopœia gives the following directions concerning this process:—

> The process of percolation, or displacement, directed in this Pharmacopœia, consists in subjecting a substance or a mixture of substances, in powder, contained in a vessel called a percolator, to the solvent action of successive portions of a certain menstruum in such a manner that the liquid, as it traverses the powder in its descent to the receiver, shall be charged with the soluble portion of it, and pass from the percolator free from insoluble matter.
>
> When the process is successfully conducted, the first portion of the liquid, or percolate, passing through the percolator, will be nearly saturated with the soluble constituents of

the substance treated; and if the quantity of menstruum be sufficient for its exhaustion, the last portion of the percolate will be nearly free from color, odor, and taste, other than those of the menstruum itself.

The percolator most suitable for the quantities contemplated by this Pharmacopœia should be nearly cylindrical, or slightly conical, with a funnel-shaped termination at the smaller end. The neck of this funnel-end should be rather short, and should gradually and regularly become narrower towards the orifice, so that a perforated cork, bearing a short glass tube, may be tightly wedged into it from within until the end of the cork is flush with the outer edge of the orifice. The glass tube, which must not project above the inner surface of the cork, should extend from 3 to 4 Cm. beyond the outer surface of the cork, and should be provided with a closely fitting rubber tube, at least one-fourth longer than the percolator itself, and ending in another short glass tube, whereby the rubber tube may be so suspended that its orifice shall be above the surface of the menstruum in the percolator, a rubber band holding it in position.

The shape of a percolator should be adapted to the nature of the drug to be operated upon. For drugs which are apt to swell, particularly when a feebly alcoholic or an aqueous menstruum is employed, a *conical* percolator is preferable. A *cylindrical* or only slightly tapering percolator may be used for drugs which are not liable to swell, and when the menstruum is strongly alcoholic, or when ether or some other volatile liquid is used for extraction. The size of the percolator selected should be in proportion to the quantity of drug extracted. When properly packed in the percolator, the drug should not occupy more than two-thirds of its height. The percolator is best constructed of glass or stoneware, but, unless otherwise directed, may be made of any suitable material not affected by the drug or menstruum.

The percolator is prepared for percolation by gently pressing a small tuft of cotton into the neck above the cork, a thin layer of clean and dry sand being then poured upon the surface of the cotton to hold it in place.

The powdered substance to be percolated (which must be uniformly of the fineness directed in the formula, and should be perfectly air-dry before it is weighed) is put into a basin, the specified quantity of menstruum is poured on, and it is thoroughly stirred with a spatula, or other suitable instrument, until it appears uniformly moistened. The moist powder is then passed through a coarse sieve—No. 40 powders, and those which are finer, requiring a No. 20 sieve, whilst No. 30 powders require a No. 15 sieve for this purpose. Powders of a less degree of fineness usually do not require this additional treatment after the moistening. The moist powder is now transferred to a sheet of thick paper and the whole quantity poured from this into the percolator. It is then shaken down lightly and allowed to remain in that condition for a period varying from fifteen minutes to several hours, unless otherwise directed; after which the powder is pressed, by the aid of a plunger of suitable dimensions, more or less firmly, in proportion to the character of the powdered substance and the alcoholic strength of the menstruum; strongly alcoholic menstrua, as a rule, permitting firmer packing of the powder than the weaker. The percolator is now placed in position for percolation, and, the rubber tube having been fastened at a suitable height, the surface of the powder is covered by an accurately fitting disk of filtering paper, or other suitable material, and a sufficient quantity of the menstruum poured on through a funnel reaching nearly to the surface of the paper. If these conditions be accurately observed, the menstruum will penetrate the powder equally until it has passed into the rubber tube and has reached, in this, a height corresponding to its level in the percolator, which is now closely covered to prevent evaporation. The apparatus is then allowed to stand at rest for the time specified in the formula.

To begin percolation, the rubber tube is lowered and its glass end introduced into the neck of a bottle previously marked for the quantity of liquid to be percolated, if the percolate is to be measured, or of a tared bottle, if the percolate is to be weighed; and by raising or lowering this receiver the rapidity of percolation may be increased or decreased as may be desirable, care being taken, however, that the rate of percolation, unless the quantity of material be largely in excess of the pharmacopœial quantity, shall not exceed the limit of ten to thirty drops in a minute. A layer of menstruum must constantly be maintained above the powder, so as to prevent the access of air to its interstices, until all has been added, or the requisite quantity of percolate obtained. This is conveniently accomplished, if the space above the powder will admit of it, by inverting a bottle containing the entire quantity of menstruum over the percolator in such a manner that its mouth may dip beneath the surface of the liquid, the bottle being of such shape that its shoulder will serve as a cover for the percolator.

When the dregs of a tincture, or of a similar preparation, are to be subjected to percolation, after maceration with all or with the greater portion of the menstruum, the liquid portion should be drained off as completely as possible, the solid portion packed in a percolator, as before described, and the liquid poured on, until all has passed from the surface, when immediately a sufficient quantity of the original menstruum should be poured on to displace the absorbed liquid, until the prescribed quantity has been obtained.

Repercolation.

Authority is given to employ, in the case of Fluid Extracts, where it may be applicable, the process of Repercolation, without change of the initial menstruum.

Precipitation is the process of separating solids from their solutions, and is usually effected by chemical reaction, though it may be accomplished by other methods, as by adding a second liquid in which the substance is insoluble, by heating albuminous solutions, or by exposing solutions of silver salts to the action of light. The most familiar example of chemical precipitation is the addition of a solution of Mercuric Chloride to one of Potassium Iodide, the result being a double decomposition of the salts and the formation of Mercuric Iodide, which falls to the bottom of the vessel as a brilliant, red, insoluble and crystalline powder. The *Precipitate* is the separated substance, which is usually thrown down, but it remains suspended in some cases, and in others it rises to the top. The *Precipitant* is the substance which is added to produce the precipitation. A *Magma* is a thick, tenacious precipitant remaining behind after the supernatant liquid is removed by decantation or otherwise. Precipitates are termed *flocculent*, *gelatinous*, *curdy*, *granular*, *crystalline*, etc.; according to the forms assumed. In small operations they are usually collected on plain filters, and washed by the repeated addition of water.

Separation of liquids which do not mix with each other is a simple mechanical process performed with pipettes of various forms, or with funnels having stop-cocks in their necks. Special forms of receivers are used for the separation of volatile oils from the water which may accompany them during distillation.

Solution is the dissolving of a solid or a gaseous substance in a liquid, and may be *Simple* when the substance undergoes no alteration, being recovered unchanged on evaporation; or *Chemical* when the dissolved body is chemically altered by the solvent of some other substance present, and cannot be recovered on evaporation. Simple Syrup is an instance of simple solution, the Syrup of Lime one of chemical solution. The liquid employed is termed a *Solvent* before the substance is added to it, after the operation is completed the combined preparation is called a *Solution*. If fully charged with the dissolved substance so that it will retain no more, it is known as a *Saturated Solution*. One liquid may be dissolved in another, or a gas may be dissolved in a liquid. The solution of solids is greatly facilitated by pulverization and by stirring the menstruum. Heat generally aids solution, most substances being more soluble in hot liquids than in cold ones. A saturated solution of one substance may still be capable of dissolving others. Rapid solution of solids without chemical change causes reduction of temperature, while chemical solution produces elevated temperature. *Circulatory Solution* is performed by suspending the substance to be dissolved near the surface of the solvent in a gauze bag or on a porous shelf. The portion first acted on descends and produces a circulatory movement in the fluid, facilitating the solution of the whole.

Solvents employed are chiefly Water, Alcohol, Glycerin, Acids and Oils. Others less frequently used are Ether, Chloroform, Benzin and Carbon Disulphide.

Sublimation is the distillation of a volatile solid, the product being termed a *Sublimate*. Its objects are to purify volatile solids from impurities, and to collect such as result from chemical action at high temperatures. The operation is carried on in iron, glass or stoneware retorts, and results in *Cake Sublimates* or *Powder Sublimates* according as the temperature of the condensing surface is high or low.

Testing and **Assay** are directed by the Pharmacopœia in certain cases, for the purpose of determining the identity and purity of its drugs and their preparations. In the main portion of the book such Tests are frequently directed, according to a specified method in each case; but processes of Assay are confined to Cinchona, Nux Vomica, Opium, and such of their preparations as are considered to require it. The Pharmacopœia contains also a very complete section on REAGENTS, in which full directions are given for the preparation and use of Test-solutions and Volumetric solutions; also instructions for Gasometric estimations, and for the determination of the Optical Rotation of organic substances.

Pharmacopœial testing and the volumetric method of determination are necessary to the work of the practical pharmacist, and as the apparatus used is simple and the operations are those in the line of his daily work, he should be familiar therewith. On the other hand the proximate analysis of organic substances for their principles, and the ultimate analysis of the same bodies for their elements, require a high degree of skill and long experience, and should be left to the professional chemist.

The apparatus used in testing consists of graduated flasks and jars, burettes, pipettes, funnels, beakers, test-tubes, capsules, crucibles, reagent-bottles, etc. The metric system is directed for all work, and the apparatus employed should be graduated accordingly.

Torrefaction or **Roasting** is the application of heat, in a less degree than for carbonization, to an organic substance for the purpose of modifying some of its constituents, as in the roasting of coffee and rhubarb. The latter substance when subjected to this process, loses its cathartic properties but retains its astringency, and is known as Torrefied Rhubarb.

Trituration is the comminution of a solid to an extremely fine powder by continued rubbing in a wedgewood mortar with an inert and gritty powder, Sugar of Milk being the substance directed to be used. The product is called a Trituration (see that title under OFFICIAL PREPARATIONS). The surfaces of the mortar and pestle-head should coincide closely, and the thorough comminution of the trituration is best accomplished by a circular motion of the pestle in gradually increasing circles, until the side of the mortar is reached, then reversing the motion, and gradually lessening the circles until the pestle reaches the centre again. The process is greatly facilitated by having the pestle attached to a long handle playing in an opening made in a piece of wood which is nailed at a convenient height. A weight may be fixed on top of the handle if a greater degree of friction is desired.

Pulverization by Intervention is only another name for trituration when performed in a mortar and with solid bodies, the foreign substance used being subsequently removed. Potassium Sulphate may be employed as the medium for the pulverization of Gold, and is then dissolved out with water. Alcohol or Chloroform may be added to Camphor to aid its pulverization, and then removed by evaporation. Phosphorus may be pulverized by placing it in water, gently heating the latter until the phosphorus is melted, and agitating the whole while cooling.

Levigation is trituration of a substance made into paste with water or some other liquid, and resembles the old process of grinding oil paints by hand on a slab of stone. The process is used for coarse materials, as chalk, etc., where the refuse is rejected, or for such substances as Red Mercuric Oxide, Zinc Oxide, etc. When performed with a porphyry slab and muller it is termed Porphyrization.

Elutriation is a water-sifting process for separating the coarser particles of insoluble substances from the finer. The substance is mixed with water and after the larger particles have fallen to the bottom, the liquid is decanted into another vessel, in which the light and powdery particles are collected.

Vaporization includes the various operations by which volatile matters are separated from fixed substances or from other matters which are less volatile, heat at varying temperatures being the agent used. The operations under this head are—*Evaporation, Distillation, Desiccation,* and *Sublimation.*

EVAPORATION in Pharmacy is the process by which the more volatile constituents of a liquid are driven off by heat for the purpose of reducing its volume or of purifying it, as in the preparation of extracts and fluid extracts, the crystallization of salts, etc. The vessels used should be shallow so as to expose a large surface of the liquid to the atmosphere. The heat used may be regulated by a water-bath, a steam-bath or sand-bath, and ordinarily should be kept below but near to the boiling point of the liquid treated. As organic substances are usually injured by long heating, small portions only of vegetable preparations should be subjected to this process, and the liquid should be frequently stirred in order to hasten the operation. In large laboratories vacuum-pans are employed to remove the atmospheric pressure, enabling the evaporation to be accomplished at a much less degree of heat than if the liquid were exposed to the air. *Ebullition* or *Boiling* is a form of evaporation.

Spontaneous Evaporation is the evaporation of a liquid without the direct application of strong heat, but at the temperature of the room or closet used for the purpose. It is especially applicable to cases in which the residue is liable to injury or loss from much heat, or in order to secure finer crystals than can be obtained by quick evaporation of their solution.

Washing is a simple mechanical process for separating soluble from insoluble matter, by pouring upon it a liquid which will dissolve the soluble portion. Various methods of doing this are in vogue and are often dignified with very high-sounding terms, as Lotion, Affusion, Ablution, etc. An ordinary wash-bottle, with the two glass tubes perforating the cork, is a convenient implement for directing a continuous stream upon a precipitate, while for continuous washing a combination of bottles with a funnel may be used.

PREPARATIONS.

The Pharmacopœial Preparations may be presented under various methods of classification, one of the simplest being that which divides them into liquids and solids, the former being subdivided into groups named after their principal bases, viz.:—

Liquid Preparations.

Aqueous,—Waters, Solutions, Infusions, Decoctions, Syrups, Honeys, Mucilages, Emulsions, Mixtures; the last five containing sweet or viscid substances.
Alcoholic,—Fluid Extracts, Tinctures, Wines, Spirits, Elixirs.
Ethereal,—Oleoresins, Collodions.
Oleaginous,—Liniments, Oleates.
Acetous,—Vinegars.
Glycerines,—Glycerites.

Solid Preparations.

- Extracts.
- Resins.
- Masses.
- Pills.
- Troches.
- Confections.
- Powders.
- Triturations.
- Suppositories.
- Ointments.
- Cerates.
- Plasters.
- Papers.

In the following descriptions of the pharmaceutical groups the composition and dosage of the various preparations are omitted, as they are fully detailed in the section on Materia Medica, under the title in each case of the principal constituent.

PHARMACEUTICAL PREPARATIONS.

The Pharmaceutical Preparations include the pharmacopœial (official) as also those of extemporaneous pharmacy (unofficial). Both classes are described together in alphabetical order, for the sake of easy reference.

Aceta, *Vinegars,*—are solutions of the active principles of certain drugs in Diluted Acetic Acid. They are made by percolation and each contains the soluble principles from 10 per cent. of drug. Acidulous menstrua form soluble salts with the alkaloids and possess antiseptic qualities. The official Vinegars number 2, viz. :—

Acetum Opii.
Acetum Scillæ.

Aquæ, *Waters,*—are aqueous solutions of volatile substances, which may be either solids, liquids, or gases, dissolved either by solution in cold or hot water, by filtration through an absorbent powder, by percolation through cotton saturated with the substance, or by distillation. The official waters number 19, including the two forms of Aqua itself, as follows, viz. :—

Aqua.
Aqua Destillata.
Aqua Ammoniæ.
Aqua Ammoniæ Fortior.
Aqua Amygdalæ Amaræ.
Aqua Anisi.
Aqua Aurantii Florum.
Aqua Aurantii Florum Fortior.
Aqua Camphoræ.
Aqua Chlori.
Aqua Chloroformi.
Aqua Cinnamomi.
Aqua Creosoti.
Aqua Fœniculi.
Aqua Hydrogenii Dioxidi.
Aqua Menthæ Piperitæ.
Aqua Menthæ Viridis.
Aqua Rosæ.
Aqua Rosæ Fortior.

Of the above 5 are prepared by simple solution, 4 by passing gases through water, 3 by distillation, and 6 by trituration of the medicament with precipitated calcium phosphate, addition of water and filtration.

All waters deteriorate when long kept, microscopic plants being propagated in them from spores derived from the atmosphere. They should be prepared only in such quantities as are needed for use within a reasonable time.

Balnea, *Baths* (Unofficial). Baths are often medicated, and then become medicinal preparations. The ingredients only are ordered in a prescription, as per the following examples, each of which is intended for a bath of 25 to 30 gallons:—

Balneum Acidi Nitrohydrochlorici.

℞. Acidi Nitrici,
Acidi Hydrochlorici, . . . aa ℥j.
M. Sig.—Use with 30 gallons of hot water, as a bath.

Balneum Sulphuris Compositum.

℞. Sulphuris Præcip., ... ℥ij.
Sodii Hyposulphitis, . . . ℥j.
Acidi Sulphurici Dil., . . . ℥ss.
Aquæ, ... Oj.
M. Sig.—For a 30 gallon bath.

Capsulæ, *Capsules,* (Unofficial). Gelatin Capsules are to be obtained from the drug stores, of various sizes from 0 to 10. They are a convenient means of administering oils or nauseous solids, and when filled may be swallowed as easily as a large pill. By some of the manufacturers *Soluble Elastic Capsules* are prepared, each containing an ordinary dose of such medicines as Castor Oil, Cod-liver Oil, etc. The largest of these capsules makes a bolus which may be swallowed with a little effort, as it is quite compressible and changes its shape to suit the calibre of the passage. The ordinary capsules are easily filled by the aid of a paper funnel, and the end of a pen-holder as a packer; but simple devices (capsule-fillers) for facilitating the operation may be purchased.

℞. Pulv. Opii, ... gr. x.
Pulv. Camphoræ, ... gr. xx.
Sacch. Alb., q. s.
Triturat., et fiant capsulæ x.
Sig.—One at bedtime for chordee; repeat in two hours if necessary.

℞. Copaibæ, ... ℥iss.
Oleoresinæ Cubebæ, . . . ℥ss.
M., et fiant capsulæ xij.
Sig.—Two capsules three times daily, soon after meals, for gonorrhœa.

Cataplasmata, *Poultices,*—are usually prepared at the residence of the patient, the ingredients only being ordered from the druggist. They are generally employed as a means of applying heat and moisture to a certain portion of the body, but are sometimes medicated with anodyne, counter-irritant or disinfectant agents. Poultices are not official in the U. S. Pharmacopœia, but are in the British, the following list including all so recognized :—

Cataplasma Carbonis, *Charcoal Poultice,*—Wood Charcoal 1, Crumb of Bread 4, Linseed Meal 3, Boiling Water 20 parts.

Cataplasma Conii, *Hemlock Poultice,*—Hemlock-juice 1, evaporated to half its volume, Linseed Meal 4, Boiling Water 10 parts.

Cataplasma Fermenti, *Yeast Poultice,*—Beer Yeast 3, Wheaten Flour 7, Water at 100° F., 3 parts.

Cataplasma Lini, *Linseed Poultice,*—Linseed Meal 2, Boiling Water 5 parts, mixed with constant stirring.

Cataplasma Sinapis, *Mustard Poultice,*—Mustard, Linseed Meal, Boiling Water and Water, of each a sufficiency.

Cataplasma Sodæ Chlorinatæ, *Chlorine Poultice,*—Solution of Chlorinated Soda 1, Linseed Meal 2, Boiling Water 4 parts.

Cerata, *Cerates,*—are unctuous preparations similar to ointments but of a much firmer consistence. They all contain Wax (Cera), and do not melt at temperatures below 104° F. They are intended for external use, and are generally spread on lint before being applied. There are 6 official Cerates, including Ceratum itself, which is made by fusing together 30 of White Wax and 70 of Lard. The composition of the others may be found in the section on Materia Medica under the appropriate titles, but the figures in parentheses below give the percentage of drug to basis in each.

Ceratum.
Ceratum Camphoræ (2).
Ceratum Cantharidis (32).
Ceratum Cetacei (10).
Ceratum Plumbi Subacetatis (5).
Ceratum Resinæ (35).

Chartæ, *Papers*,—consist of strips of paper medicated by impregnation of its fibers with medicinal substances, or by being coated therewith. Of the 2 official Papers 1 is made with sized paper, and intended for external application as a vesicant or counter-irritant; the other (Charta Potassii Nitratis) is unsized paper impregnated with Nitre and intended for the inhalation of its fumes while burning. Those officially recognized are—

Charta Sinapis.
Charta Potassii Nitratis.

Collodia, *Collodions*,—are liquid preparations having for their base a solution of Pyroxylin in a mixture of Ether and Alcohol. They are intended for external use, being applied to the skin by means of a brush, and producing a film on the surface after the evaporation of the menstruum. There are 4 official Collodions, viz.:—

Collodium.
Collodium Cantharidatum.
Collodium Flexile.
Collodium Stypticum.

The Flexible Collodion contains 5 per cent. of Canada Turpentine, and 3 per cent. of Castor Oil. Styptic Collodion contains 20 per cent. of Tannic Acid.

Confectiones, *Confections*,—consist of medicinal substances formed into a mass with Sugar, Honey, Water, etc., with the object of rendering them palatable and of preserving them from change. *Electuaries* are similar preparations, but this term is now obsolete. There are only two official Confections, viz.:—

Confectio Rosæ.
Confectio Sennæ.

Confections and Electuaries are very seldom prescribed, and therefore can have but little place in extemporaneous pharmacy. A few old formulæ for such preparations are given below as pharmaceutical curios. The first is a meritorious prescription.

Electuary for Piles.

℞. Potassii Bitartratis,
Potassii Nitratis,
Pulv. Jalapæ, ... āā ℥ss.
Confectio Sennæ, ... ℥j.
Syrupi Zingiberis, q. s.
M. Fiat electuarium.

Sig.—A piece the size of a marble to be taken thrice daily.

The Chelsea Pensioner.

℞. Sulphuris Loti, ... ℥ij.
Potassii Bitart., ... ʒj.
Pulv. Rhei, ... ʒij.
Guaiaci Resinæ, ... ʒj.
Mellis Despum., ... ℔j.
Myristicam Pulv., ... j.
M. Fiat electuarium.

Sig.—A dessertspoonful twice daily, as a laxative in chronic rheumatism.

Confectio Damocratis.

[An ingredient of Warburg's Tincture.]

This preparation was official in the London Pharmacopœia of 1745. It contained 1 grain of Opium in ℥ss, and consisted of 45 ingredients, as follows, viz.: Cinnamon, 14 parts; Myrrh, 11 parts;—White Agaric, Spikenard, Ginger, Spanish Saffron, Treacle, Mustard Seed, Frankincense and Chian Turpentine of each 10 parts;—Camel's Hay, Costus Arabacus, Zedoary, Indian leaf, Mace, French Lavender, Long Pepper, Seeds of Harwort, Juice of ripe Cistus, strained Storax, Opponex, strained Galbanum, Balsam of Gilead, Oil of Nutmeg, Russian Castor, of each 8 parts;—Water Germunder, Balsam-tree Fruit, Cubeb, White Pepper, Seeds of Cretian Carrot, Poley Mont, strained Bdellium, of each 7 parts;—Gentian-root, Celtic Hard, Leaves of Dittany of Crete, Red Rose, Seeds of Macedonium, Parsley, Sweet Fennel Seeds, Seeds of Lesser Cardamom, Gum Arabic, Opium, of each 5 parts;—Sweet Flag, Wild Valerian, Anise-seed, Sagapenum, of each 3 parts;—Spigrul, St. John's Wort, Juice of Acacia, Catechu, Dried Bellies of Skunk, of each 2½ parts;—the roots finely powdered and the whole mixed thoroughly into a paste with Clarified Honey.

Decocta, *Decoctions*,—are made by boiling vegetable substances with water. As very few drugs contain active ingredients which are not injured by heat, these preparations have never obtained favor with scientific physicians. There are only 2 official Decoctions, viz.:—

Decoctum Cetrariæ.
Decoctum Sarsaparillæ Compositum.

The official general formula for Decoctions prescribes that when the strength is not directed by the physician, nor specified by the Pharmacopœia, they shall be prepared in the proportion of 5 grammes of the substance with 100 Cc. of water; but that the strength of decoctions of energetic or powerful substances should be specially prescribed by the physician. Decoctum Cetrariæ has the aforesaid official strength, while Decoctum Sarsaparillæ Compositum has the strength of 10 per cent. as regards its principal ingredient.

Elixiria, *Elixirs*,—are sweetened, aromatic and spirituous preparations, containing active medicinal substances in small quantities. There are but 2 official Elixirs, viz:—

Elixir Aromaticum.
Elixir Phosphori.

The first-named is intended to represent a type of the large class of unofficial elixirs employed in manufacturing and extemporaneous pharmacy. It is practically an alcoholized syrup, flavored with Orange, and is designed for use as an excipient for extracts, tinctures, salts, etc. The Elixir of Phosphorus has about ¼ milligramme of Phosphorus to each cubic centimeter. The manufacturers have put on the market a great variety of elixirs, and most druggists keep a stock of them on hand prepared in the shop; but they may be ordered by prescription just as any other mixture would be. The substances generally used in this form are as follows:—

Arsenic.
Bismuth.
Ammonium Bromide.
Lithium Bromide.
Potassium Bromide.
Calisaya Bark.
Chloral Hydrate.
Coca.
Gentian.
Guarana.
Iron, Tincture of the Chloride.
Iron, Phosphate.
Iron, Pyrophosphate.
Liquorice.
Pepsin.
Quinine.
Strychnine.
Taraxacum.
Ammonium Valerianate.

Many of these agents are combined with each other, as in the Elixir of Bismuth and Strychnine; Elixir of Calisaya, Iron and Strychnine; Elixir of Gentian with Tincture of Chloride of Iron; Elixir of Iron, Quinine and Strychnine, etc., etc.

Emplastra, *Plasters*,—are solid compounds, insoluble in water, of a tenacious but pliable consistence and intended for external application to limited areas of the body surface. They are prepared by incorporating medicinal substances with certain bases, which are usually Lead Plaster (Oleate of Lead), a Gum-resin, or Burgundy Pitch. The heat employed should be low so as to avoid decomposing the active agents, and should not be continued long enough to drive off any volatile constituents. The plaster mass is then spread evenly on chamois skin, kid skin or muslin. The constituents of the following named 13 official Plasters may be found in the section on Materia Medica, under their appropriate headings.

Emp. Ammoniaci cum Hydrargyro.
Emplastrum Arnicæ.
Emplastrum Belladonnæ.
Emplastrum Capsici.
Emplastrum Ferri.
Emplastrum Hydrargyri.
Emplastrum Ichthyocollæ.
Emplastrum Opii.
Emp. Picis Burgundicæ.
Emp. Picis Cantharidatum.
Emplastrum Plumbi.
Emplastrum Resinæ.
Emplastrum Saponis.

Of the foregoing only two are directed to be spread, viz.—Emp. Capsici upon muslin, and Emp. Ichthyocollæ upon taffeta, the others having no pharmacopœial prescription for the material to be used. Plasters after being spread should remain soft, pliable and adhesive, without melting at the heat of the body. To soften the surface, if old, it should be brushed with a small portion of Tincture of Camphor.

Plasters are rarely prepared extemporaneously, the official and many other ones being produced on a large scale by the manufacturers, and kept in stock by all druggists. As a consequence the compounding and spreading of a plaster by the pharmaceutist has become a lost art. The official plasters may be ordered by prescription in the manner illustrated below. *Blisters* may be produced by the application of any preparation of Cantharides sufficiently strong for the purpose. The official Cerate of Cantharides may be spread on Adhesive Plaster (Emplastrum Resinæ), making a blistering plaster; or Cantharidal Collodion may be painted over the surface. Plasters are usually ordered by the square inch, but a model of the shape and size may be drawn on paper, and the plaster be directed to conform thereto, as in the first of the following prescriptions.

Emplastrum Vesicatorium.

℞. Cerati Cantharidis, q. s.
Extende supra Emplastrum Resinæ hujus formæ et magnitudinis.
Sig.—Blistering Plaster, to be applied over the region of the heart.

Counter-irritant and Anodyne.

℞. Chartæ Sinapis,
Emplas. Belladonnæ, āā 3'' x 6''.
Sig.—Apply the mustard paper first, to be followed by the plaster when the surface has been well reddened.

Emulsa, *Emulsions*,—are aqueous, liquid preparations containing an insoluble medicinal substance (as an oil or resin) in a state of minute subdivision and suspended by the aid of some viscid excipient, as gum, which may be contained in the medicinal ingredient itself (Ammoniac, Asafetida), or may be added by the pharmaceutist. The official Emulsions are 4 in number, all of which were classed as Mixtures in the pharmacopœia of 1880, viz.—

Emulsum Ammoniaci.
Emulsum Amygdalæ.
Emulsum Asafœtidæ.
Emulsum Chloroformi.

NATURAL EMULSIONS comprise two classes of substances,—(1) those emulsions which exist ready formed in nature, as milk, yolk of egg, the milky juices of plants, etc. ; and (2) the mixtures formed by rubbing up gum-resins (as Ammoniacum, Myrrh, Asafetida) with water. Each of the latter substances contains, together with its resin, enough gum to make a perfect emulsion when triturated with water. The manufactured emulsions are simply imitations of the natural ones, sufficient gum being added in case of a resinous substance to cause its suspension in the aqueous diluent.

Emulsification consists in the division of the oily or resinous substance into very minute globules, and the surrounding of each globule with a thin envelope of the excipient. If properly done the globules will remain mechanically suspended in the water, without any tendency towards recombination. Milk is the best illustration of a natural emulsion, its butter existing in the aqueous portion as very minute globules, each surrounded by a thin film of casein. Yolk of Egg is a dense emulsion, consisting of oil suspended in water by means of albumen.

The EXCIPIENTS which may be used for emulsification are the following, arranged in the order of their most frequent employment, viz. :—

Mucilage of Acacia,—used for oils and resins. Powdered Acacia is even better, being made into a mucilage by the process of emulsification; such a mucilage having the advantage of being perfectly fresh when incorporated with the other ingredients. To give uniformly good results the following proportions in parts by weight should be used, viz. :—

	Gum Acacia.	Water.
1 part of Fixed Oils or Copaiba requires, ...	½	¾
1 " " Balsam of Peru "	2	1½
1 " " Oil of Turpentine "	1	1

Mucilage of Tragacanth,—may also be used for oils and resins, but it has not proved so satisfactory as the preceding. The same may be said of powdered Tragacanth.

Vitellus, *Yolk of Egg*,—is an excellent agent for emulsifying oils, but mixtures made with it must be used within a few days, as they will not keep long. One yolk will emulsionize an ounce of fixed oil, and is about equal to half an ounce of Acacia. It is best suited to emulsions of cod-liver oil intended for immediate administration. The official Emulsum Chloroformi is an emulsion made with yolk of egg. *Glyceritum Vitelli* or *Glyconin* is an official preparation consisting of glycerin and yolk of egg. One ounce of it will emulsify three ounces of fixd oil.

Liquor Potassæ,—may be used for oils, the resulting compound being however a soap rather than an emulsion. Copaiba is usually emulsified by using both a gum and an alkali; a similar process being employed for many of the fixed oils.

Tincture of Senega,—will emulsify fats and oils very efficiently, and even in very small quantities, ♏x emulsifying an ounce of fixed oil.

Tincture of Quillaja (Soap-bark),—is a good emulsifier for oils, and is much used in Europe for this purpose.

Milk,—is used to emulsify Scammony in the Mistura Scammonii, which is official in the British Pharmacopœia.

Syrups, Confections and **Extracts,**—may be used in making emulsions, but are rarely so employed.

Soap,—is occasionally used for emulsifying Oil of Turpentine.

The method of preparing an emulsion which experience has shown to be the best, is as follows:—Add the oil, resin, etc., to a proper quantity of the excipient, and mix both thoroughly in a wedgewood mortar. Then add enough water to equal one-half the weight of the previous mixture, and triturate the whole rapidly and unceasingly until the emulsion is homogenous and of a whitish color. Next, add the remainder of the water slowly, with continual stirring; finally incorporating the other ingredients, if any.

Emulsions are sometimes flavored and at the same time colored, with such a preparation as the Compound Tincture of Cardamom; but they present a better appearance when perfectly white. Alcoholic preparations should not be added in large quantity to emulsions made with Acacia or Yolk of Egg, as alcohol will precipitate the emulsifying agent. Volatile Oils require admixture with a fixed oil before being made into an emulsion. Soluble salts should never be prescribed with emulsions of oils. Acids are incompatible with mixtures which have been emulsified by an alkali. Mucilage used for emulsions should always be freshly prepared.

The following examples of prescriptions for emulsions will represent those generally met with:—

Cod-Liver Oil Emulsion.

℞. Olei Morrhuæ, ... ℥ ij.
Vini Albi, ... ℥ iss.
Ac. Phosphorici Dil., ... ʒ iij.
Syrupi, ... ℥ v.
Vitellum, ... j.
Aq. Amygd. Amar., q. s. ad ℥ viij.
Misce, et fiat emulsum.
Sig.—Tablespoonful doses.

Alkaline Emulsion of Copaiba.

℞. Copaibæ,
Liq. Potassæ, ... āā ʒ ij.
Misce, et adde—
Pulv. Acaciæ,
Pulv. Sacchari, ... āā ʒ ij.
Aq. Menth. Viridis, q. s. ad ℥ iv.
Misce, et fiat emulsum.
Sig.—Tablespoonful doses.

Extracta, *Extracts*,—are solid or semi-solid preparations obtained by evaporating solutions of vegetable principles. The drug is first powdered, then percolated with the appropriate menstruum to exhaustion. The first third of the percolate is reserved, the remainder is evaporated at a temperature not above 122° F., until its weight is ten per cent. of that of the drug used, then mixed with the reserved portion, and both are evaporated to a pilular consistence. The above is the general rule, but in several instances maceration is directed for 1 to 4 days before percolation; and in other cases, instead of reserving a portion of the percolate, the whole quantity is distilled until the alcohol is removed, and the residue is evaporated to a pilular consistence. The menstrua used are,—in 6 cases Alcohol, in 13 cases Diluted Alcohol of varying strength, in 7 Water, in 1 Water with Aqua Ammoniæ, in 1 a diluted Acetic Acid, and in 2 Acetic Acid and Diluted Alcohol. One extract is an inspissated juice (Ext. Taraxaci); one is made by evaporating a fluid extract (Ext. Ergotæ), one by mixing an extract with other ingredients (Ext. Colocynthidis Comp.), and one (Ext. Glycyrrhizæ) is an ordinary commercial product.

The official Extracts number 32, and are named as follows, the letters in parentheses indicating the ingredients of the menstruum used in extraction in each case, viz.—

Extractum Aconiti (A).
Ext. Aloës (W).
Ext. Arnicæ Radicis (DA).
Ext. Belladonnæ Foliorum Alcoholicum (A_2W_1).
Ext. Cannabis Indicæ (A).
Ext. Cimicifugæ (A).
Ext. Cinchonæ (A_3W_1).
Ext. Colchici Radicis (WAc).
Ext. Colocynthidis (DA).
Ext. Colocynthidis Compositum.
Ext. Conii (DA,Ac).
Ext. Digitalis (A_2W_1).
Ext. Ergotæ (DA,Ac).
Ext. Euonymi (A_2W_1).
Ext. Gentianæ (W).
Ext. Glycyrrhizæ.
Ext. Glycyrrhizæ Purum (W).
Ext. Hyoscyami (A_2W_1).
Ext. Iridis (A).
Ext. Jalapæ (A).
Ext. Juglandis (DA).
Ext. Krameriæ (W).
Ext. Leptandræ (A_3W_1).
Ext. Nucis Vomicæ (A_3W_1).
Ext. Opii (W).
Ext. Physostigmatis (A).
Ext. Podophylli (A_4W_1).
Ext. Quassiæ (W).
Ext. Rhei (A_4W_1).
Ext. Stramonii Seminis (DA).
Ext. Taraxaci (W).
Ext. Uvæ-ursi (A_2W_5).

The *Proximate Principles* generally present in extracts, besides the peculiar principles of plants, are Sugar, Tannin, Extractive, Chlorophyll, Coloring-matter, and Salts. When an alcoholic solvent is used there are also present Resins, Fats, and often a Volatile Oil, and when the menstruum is not purely alcohol there is more or less gum and starch. One of these ingredients, named *Extractive* or *Apotheme*, is a deposit, soluble in water and alcohol, which has the singular property of passing into an insoluble substance under the influence of the atmospheric air with heat. It also has a tendency, when precipitated from solutions, to unite with other principles, carrying them down with it. It is frequently present in extracts, hence its name.

Extracta Fluida, *Fluid Extracts,*—are permanent and concentrated solutions of vegetable drugs, of uniformly definite strength if the crude drugs are so, a cubic centimeter (♏ 16.23) in each case representing the medicinal powers of one gramme (gr. 15.43) of the drug, or approximately a minim of the finished preparation representing the active constituents of a grain of the drug. They are officially directed to be prepared by percolation and partial evaporation, the menstrua employed being usually Alcohol, diluted Alcohol, or Alcohol and Water in various proportions, though a few are percolated with water, the alcohol being afterwards added. In several instances Glycerin in different proportions is added to the first menstruum; and in the menstrua used for the fluid extracts of Conium, Ergot, Nux Vomica and Sanguinaria, Acetic Acid is an ingredient. In the preparation of the fluid extract of Prunus Virginiana, the extraction is preceded by maceration with water and glycerin, in order to permit of the formation of Hydrocyanic Acid by the reaction of the amygdalin and emulsin of the bark upon each other, which takes place only in the presence of water. The glycerin aids to keep the dissolved matters in perfect solution, and also to better retain the acid and volatile oil formed during the process. The fluid extract of Glycyrrhiza is prepared by maceration for 48 hours in a menstruum containing Ammonia-water, then by percolation, using a mixture of alcohol and water. The menstruum directed to be used in each case is intended to be that which will thoroughly extract all the active constituents of the drug and at the same time leave the inert soluble matters behind in the rejected portion, known as the *marc*. In manufacturing fluid extracts on a large scale, modifications of the official processes are necessary, and the methods used are generally percolation and maceration with hydraulic pressure, vacuum maceration followed by percolation, percolation with incomplete exhaustion, or repercolation.

The official Fluid Extracts number 88, and are named in the following list; the letters and figures following in parentheses showing the ingredients of their respective menstrua, by the initials of Alcohol, Diluted Alcohol, Water, Glycerin and Ammonia-water. The interrogation sign (?) signifies that the several proportions cannot be represented by figures.

Extractum Aconiti Fl. (A_3W_1).
Ext. Apocyni Fl. ($A_{65}W_{25}G_{10}$).
Ext. Arnicæ Radicis Fl. (A_3W_1).
Ext. Aromaticum Fluidum (A).
Ext. Asclepiadis Fluidum (DA).
Ext. Aspidospermatis Fl. ($A_6W_3G_1$).
Ext. Aurantii Amari Fl. (A_2W_1).
Ext. Belladonnæ Radicis Fl. (A_4W_1).
Ext. Buchu Fluidum (A).
Ext. Calami Fluidum (A).
Ext. Calumbæ Fluidum (A_3W_1).
Ext. Cannabis Indicæ Fl. (A).
Ext. Capsici Fl. (A).
Ext. Castaneæ Fl. ($A_4W_5G_1$).
Ext. Chimaphilæ Fl. (DA).
Ext. Chiratæ Fl. (A_2W_1).
Ext. Cimicifugæ Fl. (A).
Ext. Cinchonæ Fl. (AWG?).
Ext. Cocæ Fluidum (DA).
Ext. Colchici Radicis (Fl. A_2W_1).
Ext. Colchici Seminis Fl. (A_2W_1).
Ext. Conii Fl. (DA).
Ext. Convallariæ Fl. (DA).
Ext. Cubebæ Fluidum (A).
Ext. Cusso Fluidum (A).
Ext. Cypripedii Fluidum (DA).
Ext. Digitalis Fluidum (A_2W_1).
Ext. Dulcamaræ Fluidum (DA).
Ext. Ergotæ Fluidum (DA).
Ext. Eriodyctii Fluidum (A_4W_1).
Ext. Eucalypti Fluidum (A_3W_1).
Ext. Eupatorii Fluidum (DA).
Ext. Frangulæ Fluidum (A_5W_8).
Ext. Gelsemii Fluidum (A).
Ext. Gentianæ Fluidum (DA).
Ext. Geranii Fluidum (DA_9G_1).
Ext. Glycyrrhizæ Fl. ($A_{30}W_{65}Am_5$).
Ext. Gossypii Radicis Fl (A_3G_1).
Ext. Grindeliæ Fluidum (A).
Ext. Guaranæ Fluidum (A_3W_1).
Ext. Hamamelidis Fl. ($A_5W_8G_1$).
Ext. Hydrastis Fluidum ($A_6W_3G_1$).
Ext. Hyoscyami Fluidum (A_2W_1).
Ext. Ipecacuanhæ Fluidum (A_3W_1).
Extractum Iridis Fluidum (A).
Ext. Krameriæ Fluidum (DA_9G_1).
Ext. Lappæ Fluidum (DA).
Ext. Leptandræ Fluidum (A_3W_1).
Ext. Lobeliæ Fluidum (DA).
Ext. Lupulini Fluidum (A).
Ext. Matico Fluidum (A_3W_1).
Ext. Menispermi Fluidum (A_2W_1).
Ext. Mezerei Fluidum (A).
Ext. Nucis Vomicæ Fluidum (A_3W_1).
Ext. Pareiræ Fluidum (AWG?).
Ext. Phytolaccæ Radicis Fl. (A_2W_1).
Ext. Pilocarpi Fluidum (DA).
Ext. Podophylli Fluidum (A_4W_1).
Ext. Pruni Virginianæ Fl. (AWG?).
Ext. Quassiæ Fluidum (A_1W_2).
Ext. Rhamni Purshianæ Fluidum (DA).
Ext. Rhei Fluidum (A_4W_1).
Ext. Rhois Glabræ Fluidum (DA_9G_1).
Ext. Rosæ Fluidum (DA_9G_1).
Ext. Rubi Fluidum ($A_6W_3G_1$).
Ext. Rumicis Fluidum (DA).
Ext. Sabinæ Fluidum (A).
Ext. Sanguinariæ Fluidum (A_3W_1).
Ext. Sarsaparillæ Fluidum (A_1W_2).
Ext. Sarsaparillæ Fl. Co. ($A_3W_6G_1$).
Ext. Scillæ Fluidum (A_3W_1).
Ext. Scoparii Fluidum (DA).

Ext. Scutellariæ Fluidum (DA).
Ext. Senegæ Fluidum ($A_{75}W_{20}Am_5$).
Ext. Sennæ Fluidum (DA).
Ext. Serpentariæ Fluidum (A_4W_1).
Ext. Spigeliæ Fluidum (DA).
Ext. Stillingiæ Fluidum (DA).
Ext. Stramonii Seminis Fl. (A_2W_1).
Ext. Taraxaci Fluidum (DA).
Ext. Tritici Fluidum (A_1W_2).
Ext. Uvæ Ursi Fluidum ($A_2W_5G_3$).
Ext. Valerianæ Fluidum (A_3W_1).
Ext. Veratri Viridis Fluidum (A).
Ext. Viburni Opuli Fluidum (A_2W_1).
Ext. Viburni Prunifolii Fl. (A_3W_1).
Ext. Xanthoxyli Fluidum (A).
Ext. Zingiberis Fluidum (A).

In 14 instances only does the Pharmacopœia direct the making of other preparations from corresponding fluid extracts, these being the Syrups of Ipecac, Krameria, Rhubarb, Rose, Rubus, Senega and Ginger; the Compound Syrups of Sarsaparilla and Squill; the Tincture of Ipecac and Opium, the Wine of Ipecac, the Extract of Ergot, the Liniment of Belladonna, and the Mixture of Rhubarb and Soda. Notwithstanding this fact it is a common practice for dispensing pharmaceutists to make tinctures, syrups, infusions, etc., from fluid extracts; and some manufacturers put a label on the bottles containing their fluid extracts, giving the formulæ for so preparing other preparations. This practice is illegitimate, and tends to still further degrade the profession of pharmacy into a mere trade, so far as dispensing is concerned.

A large number of unofficial fluid extracts are manufactured and for sale, one house alone carrying over 400 such on their catalogue. **Normal Liquids** are a class of superior fluid extracts introduced by Parke, Davis & Co., which are claimed to be adjusted to a maximum strength by accurate assays for alkaloidal strength made at each stage of their manipulation, irrespective of the amount of material required, which in the case of official fluid extracts is prescribed by the Pharmacopœia, regardless of the varying quality of drugs in the market. This firm prepares Normal Liquids of Aconite, Veratrum Viride, Belladonna (root or leaves), Cannabis Indica, Cinchona, Calisaya, Cinchona Rubra, Colchicum (root or seed), Conium, Ergot, Digitalis, Gelsemium, Hyoscyamus, Ipecacuanha, Podophyllum, Nux Vomica, Rhubarb, and Stramonium (seed or leaves). Of these preparations one cubic centimeter is equivalent to one gramme of the corresponding drug of standard alkaloidal strength. A fluid extract of Belladonna leaves may contain .25 or .45 per cent. of Atropine, according to the quality of the drug employed; a Normal Liquid will contain invariably .4 per cent. of the alkaloid, so that in a given dose it may be relied upon to produce a certain effect.

Gargarysma, *A Gargle*,—is a mixture or solution for application to the pharynx or the mouth (mouth-wash). It should never contain any very active drug, which would produce dangerous symptoms if swallowed; nor any agent which would injure the teeth or the mucous membrane. Gargles are ordered and compounded in the same manner as mixtures. They usually contain astringent or disinfecting salts (Alum, Borax, Zinc Sulphate, Potassium Chlorate), with a vegetable astringent, and often Honey. The following formulæ will illustrate prescriptions of this class:—

℞. Tr. Guaiaci Ammoniatæ,
Tr. Cinchonæ Comp., . . āā ℥ss.
Mellis Despumat., ... ℥jss.
Bene simul agita, et adde—
Potassii Chloratis, ... ʒijss.
Aquæ, q. s., *ad* . . . . . . ℥viij.
Fiat gargarysma. Sig.—Gargle.

℞. Aluminis, ... ʒij.
Granati Corticis, ... ʒiv.
Petal. Rosæ Rubr., ... ℥j.
Mellis Despumat., ... ℥j.
Aquæ Bullientis, ... ℥vj.
M. Sig.—Gargle.
(*Goddard.*)

Glycerita, *Glycerites*,—are mixtures of medicinal substances with Glycerin, in which some of them are dissolved. They are very useful preparations for dispensing purposes, as they can be readily diluted with water or alcohol without precipitation. There are 6 official Glycerites, the figures following their names in the list below indicating the percentage of drug in each. The Glycerite of Starch contains 10 per cent. of water, and that of Hydrastis has for its menstruum a mixture of glycerin, alcohol and water.

Glyceritum Acidi Carbolici, 20.
Glyceritum Acidi Tannici, 20.
Glyceritum Amyli, 10.
Glyceritum Boroglycerini, 31.
Glyceritum Hydrastis, 100.
Glyceritum Vitelli, 45.

Haustus, *A Draught*,—is an extemporaneous mixture consisting of a single dose, and usually ordered in a vial containing from one to two fluidounces.

Effervescing Draught is one of the best known. It is prepared by neutralizing a watery solution of Potassium Bicarbonate with Lemon-juice or Citric Acid, and may be drunk during effervescence. When the CO_2 has escaped it is a solution of Potassium Citrate in water, and corresponds to the official Liquor Potassii Citratis, or Neutral Mixture.

Black Draught is another well-known preparation of this class. It is official as Infusum Sennæ Compositum.

Infusa, *Infusions*,—are prepared by treating vegetable substances with hot or cold water without boiling. Cold water is preferred when the drug contains a desirable volatile principle, or when its active ingredient is injured by heat. The drug should be coarsely comminuted, sliced or bruised, and treated by maceration or percolation with the proper quantity of water, which in the absence of specific directions to the contrary should be 5 parts by weight of the drug to 100 of water, or 5 grammes in 100 Cc. Infusions should be freshly made as required, for they are very prone to decomposition. Those official number 4, and are named in the following list, the figure after each representing the percentage of drug to menstruum, viz.—

Infusum Cinchonæ, 6.
Infusum Digitalis, 1½.
Infusum Pruni Virginianæ, 4.
Infusum Sennæ Compositum, 6.

The last named infusion contains also 12 per cent. each of Manna and Magnesium Sulphate and 2 of Fennel. The Infusion of Cinchona has of Aromatic Sulphuric Acid 1 per cent. Alcohol, in the proportion of 10 per cent. is an ingredient of the Infusion of Digitalis to prevent decomposition.

Many dispensing pharmaceutists are in the habit of making infusions from concentrated alcoholic tinctures or from fluid extracts. It is a very reprehensible practice, especially in those cases where the active ingredients are of a resinous nature and therefore precipitate when the alcoholic solution is added to water.

Injectiones, *Injections*,—are liquid preparations intended for introduction into the cavities of the body by means of a syringe. When thrown into the rectum they are termed Enemas (*Enemata*), or Clysters, and are usually prepared at the bedside. Enemata may be demulcent, laxative, nutritive, stimulant, or vermifuge in character; and always have warm or tepid water as their diluent, with which are incorporated such medicaments as may be desired. They may consist simply of water to act as a wash for the cleansing of the bowel. Injections are termed vaginal, urethral, vesical, nasal, hypodermic, etc., according to the locality in which they are employed. A special form of syringe is employed in each case, the discussion of which belongs rather to the domain of surgery than that of medicine. Those used for the nasal cavities are often arranged with small holes or an atomizing attachment, so as to deliver the injection in the form of a fine spray. A *Collunarium* is a nasal douche or wash. In the Appendix will be found a list of formulæ for hypodermic injections; a few prescriptions for other forms are appended below.

Enema for Stricture of the Rectum.

℞. Bismuthi Subcarb., . . . ℥j.
Extracti Opii, ... gr. ij.
Glycerini, Aquæ, . . āā ℥ij.

M. Fiat enema. Sig.—Two tablespoonfuls to be injected thrice weekly.

Demulcent Enema.

℞. Tincturæ Opii, ... ♏xx.
Decocti Amyli, ... ℥iv–vj.

M. Fiat enema.

Vermifuge Enema.

℞. Extr. Quassiæ Fl., . . . ℥jss.
Aquæ, ... ℥ijss.

M. Sig.—A tablespoonful with an equal quantity of warm water, as an enema, to be retained as long as possible.

Nasal Injection (Dobell's).

℞. Ac. Carbolici, ... ʒjss.
Sodii Bicarb.,
Sodii Boratis, ... āā ʒiv.
Glycerini, ... ʒxivss.
Aquæ q. s. ad . . . . ℥viij.

M. Sig.—A tablespoonful diluted with an equal quantity of tepid water to be used thrice daily with a nasal sprayer.

Injection for Gonorrhœa.

(Injection Brou.)

℞. Zinci Sulphatis, ... gr. viij.
Plumbi Acetatis, ... gr. xv.
Tincturæ Opii, ... ℥ij.
Tinct. Catechu, ... ℥j.
Aquæ Rosæ, q. s. ad . . ℥vj.

M. Fiat injectio. Sig.—Use with a urethral syringe.

Injection for Chronic Urethritis.

℞. Hydrarg. Chl. Corrosivi, gr. ¼.
Zinci Chloridi, ... gr. ss.
Aquæ Destillatæ, . . . ℥viij.

M. Sig.—A teaspoonful to be injected well down into the urethra thrice daily, through a gum-catheter.

Vaginal Injections for Leucorrhœa.

℞. Aluminis, ... ʒj.
Zinci Sulphatis, ... ʒss.
Sodii Boratis, ... gr. iv.

M. Sig.—Dissolve in half-a-pint of warm water, and use with a vaginal syringe.

℞. Acidi Tannici, ... ℥j.
Glycerini, ... ℥iv.

M. Sig.—One-half with an equal quantity of water to be injected twice daily.

Inhalationes, *Inhalations*, and **Vapores**, *Vapors*,—are medicines in the form of a vapor, a gas or an atomized spray, to be inhaled by the patient for their local action on the respiratory tract. The well-known steam-atomizer is the agent by which most of these preparations are administered, though many substances may be inhaled from the surface of hot water, from a sponge in a bottle surrounded by a hot cloth, or from a heated shovel. They are prescribed in the usual manner, as follows :—

Stimulant Inhalation.

℞. Olei Cubebæ, ... ʒ ij.
Magnesii Carbonat., . . . ʒ j.
Aquæ, ... ℥ iij.
M. Sig.—A teaspoonful in a pint of water at 150° F., for each inhalation.

Oil of Pine.

℞. Ol. Pini Sylvestris, . . . ʒ ij.
Magnesii Carb., ... ʒ j.
Aquæ, ... ℥ iij.
M. Sig.—A teaspoonful on a pint of hot water for each inhalation.

Carbolized Inhalation.

℞. Acidi Carbolici, ... ♏ xlviij.
Aquæ, q. s. ad . . . . ℥ ij.
M. Sig.—Use one-half in the cup of a steam-atomizer for each inhalation.

Tar and Turpentine.

℞. Ol. Picis Liquidæ,
Ol. Terebinth, . . . āā ℥ ij.
M. Sig.—Pour slowly on a hot shovel in the sick-room, keeping the vapor confined therein.

The official Charta Potassii Nitratis (Nitre-paper), is a preparation intended for use as an inhalation, its vapors while burning being taken into the lungs.

Linimenta, ***Liniments***,—are very thin ointments for external application, intended to be applied with friction to the skin. They are solutions of various substances in oily liquids or in alcoholic liquids containing fatty oils. Of the following 9 official Liniments 2 have as their basis Cotton-seed Oil, 1 Linseed Oil, 1 Oil of Turpentine, 1 Alcohol, and 3 Alcohol and Water.

Linimentum Ammoniæ.
Linimentum Belladonnæ.
Linimentum Calcis.
Linimentum Camphoræ.
Linimentum Chloroformi.
Linimentum Saponis.
Linimentum Saponis Mollis.
Linimentum Sinapis Compositum.
Linimentum Terebinthinæ.

Extemporaneous Liniments may correspond to the official ones or they may be simple mixtures of fluids without either fat or soap. A prescription for each kind is appended. The official Linimentum Saponis (Soap Liniment) is a good basis for extemporaneous preparations of this class.

Compound Chloroform Liniment.

℞. Ext. Belladon. Rad. Fl., . . ℥ ss.
Extracti Aconiti Fl.,
Chloroformi Venalis, . . āā ʒ ij.
Spiritus Camphoræ, . . . ℥ j.
Alcoholis Diluti, q. s. ad . ℥ viij.
M. Fiat linimentum.
Sig.—Poison. To be rubbed on the painful part.

Anodyne Liniment.

℞. Tinct. Aconiti, ... ʒ ij.
Tinct. Opii, ... ʒ iv.
Tinct Arnicæ, ... ℥ j.
Chloroformi, ... ʒ ij.
Linim. Saponis, q. s. ad. . ℥ iv.
M. Fiat linimentum.
Sig.—Poison. Liniment.

Stokes' Liniment.

℞. Olei Terebinthinæ, ... ℥ iij.
Acidi Acetici, ... ℥ ss.
Olei Limonis, ... ʒ j.
Vitellum, ... j.
Aquæ Rosæ, ... ℥ iij
M. Fiat linimentum.
Sig.—Liniment.

Army Medical Wagon Liniment.

℞. Liq. Ammoniæ,
Ol. Terebinthinæ,
Ol. Olivæ,
āā, partes æquales.
M. Fiat linimentum.
Sig.—Liniment.

An Embrocation is a similar preparation, but of thinner consistence. The term is almost obsolete.

Liquores, *Solutions*,—comprise all aqueous solutions of non-volatile substances, except the syrups, infusions and decoctions, which naturally form distinctive classes. There are 24 official solutions, 7 of which are *simple* aqueous solutions of the medicament, the rest being *chemical* aqueous solutions, in which the dissolved substances are altered by chemical action, and new ones formed. They are named as follows, viz.—

Liquor Acidi Arsenosi.
Liquor Ammonii Acetatis.
Liquor Arseni et Hydrargyri Iodidi.
Liquor Calcis.
Liquor Ferri Acetatis.
Liquor Ferri Chloridi.
Liquor Ferri Citratis.
Liquor Ferri et Ammonii Acetatis.
Liquor Ferri Nitratis.
Liquor Ferri Subsulphatis.
Liquor Ferri Tersulphatis.
Liquor Hydrargyri Nitratis.
Liquor Iodi Compositus.
Liquor Magnesii Citratis.
Liquor Plumbi Subacetatis.
Liquor Plumbi Subacetatis Dilutus.
Liquor Potassæ.
Liquor Potassii Arsenitis.
Liquor Potassii Citratis.
Liquor Sodæ.
Liquor Sodæ Chloratæ.
Liquor Sodii Arsenatis.
Liquor Sodii Silicatis.
Liquor Zinci Chloridi.

Lotio, *A Lotion* or *Wash*,—is a solution or mixture of medicinal agents, intended for external application; and usually consists of some soluble, astringent salt, dissolved in water, with perhaps some glycerin or alcohol. A Fomentation (*Fotus*) is a similar preparation used hot. A *Collyrium* is an eye-wash, and generally contains a soluble astringent salt dissolved in rose-water or distilled water, in the proportion of gr. j–iv to the ℥. The only official preparation suitable for a lotion is the Liquor Plumbi Subacetatis Dilutus, or Lead-water. A well-known anodyne, refrigerant and astringent lotion is that represented by the upper two of the following prescriptions.

Lead-water and Laudanum.

℞. Liq. Plumbi Subacetatis, . . ʒj.
Tinct. Opii, ... ℥j.
Aquæ, q. s. *ad* . . . . . . ℥viij.
M. Fiat lotio. Sig.—Lotion.
Gross.

Collyrium.

℞. Sodii Boratis, ... gr. x.
Aquæ Camphoræ, ... ʒij.
Mucil. Cydonii,
Aquæ Destil., ... aa ℥ss.
M. Fiat collyrium. Sig.—Eye-water; a few drops to be put into the eye three or four times daily.

Lead and Opium Wash.

℞. Liq. Plumbi Subacetatis,
Tinct. Opii, ... aa ℥j.
Aquæ, q. s., *ad* . . . . ℥viij.
M. Fiat lotio. Sig.—Lotion.
Sturgis.

Collyrium of Four Sulphates.

℞. Zinci Sulphatis,
Ferri Sulphatis,
Cupri Sulphatis,
Aluminis, ... aa gr. j.
Aquæ Destillatæ, ... ℥j.
M. Fiat collyrium. Sig.—For use with brush to palpebral conjunctivæ, and to be washed off with clean water.

Massæ, *Masses*,—are Pill-masses prepared as described in the next paragraph. The official Masses number 3, viz.:—

Massa Copaibæ.
Massa Hydrargyri.
Massa Ferri Carbonatis.

Mellita, *Honeys,*—differ from syrups merely in their being prepared with honey as a base. The *Oxymel* and *Oxymel Scillæ* of the B. P. are similar preparations, containing also Acetic Acid. There are 3 official Honeys, including two forms of honey itself, viz.:—

Mel.
Mel Despumatum.
Mel Rosæ.

Misturæ, *Mixtures,*—in official pharmacy are aqueous preparations of *insoluble* substances held in suspension by a suitable vehicle. In extemporaneous pharmacy the term mixture has a wider signification, as explained below. Mixtures are generally prepared extemporaneously upon prescriptions, as few of them are of the stability necessary to insure their preservation beyond a few days. The official Mixtures are 4 in number, and are named as follows, viz.:—

Mistura Cretæ.
Mistura Ferri Composita.
Mistura Glycyrrhizæ Composita.
Mistura Rhei et Sodæ.

In extemporaneous pharmacy the term *Mixture* is applied to every fluid compound intended for internal use, except a few which bear distinctive titles, such as Emulsions, Draughts, Enemas, Elixirs and Drinks. The simplest form of mixture in this extended sense is that in which two or more liquids are mixed together; but a great variety of substances may be prescribed in this form, chief among which are most of the soluble salts, light insoluble powders, salts which may be diffused by agitation, extracts, gum-resins, and the fixed essential oils. They are generally ordered in 2, 3, 4, 6, 8, 10 and 12-ounce vials.

Substances suitable to the mixture-form, properly so called, are those which, though more or less insoluble in water, will mix with it by agitation, trituration, etc. Those most frequently ordered are as follows:—

Diffused by Agitation:—

Calcii Phosphas Præcipitatus.
Cinchona (powdered).
Ipecacuanha (powdered).
Magnesia.
Quininæ Sulphas.
Sulphur Præcipitatum.

Suspended by Viscid Excipients:—

Essential Oils.
Oleum Amygdalæ.
Oleum Morrhuæ.
Oleum Olivæ.
Oleum Ricini.
Copaiba.
Ferri Carbonas Saccharatus.

Miscible only by Trituration:—

Ammoniacum.
Asafœtida.
Confectio Rosæ.
Confectio Sennæ.
Extractum Aconiti.
Ext. Belladonnæ Fol. Alcohol.
Ext. Conii.
Ext. Hyoscyami.
Ext. Stramonii.
Ext. Glycyrrhizæ.
Ext. Krameriæ.
Ext. Taraxaci.
Guaiacum.
Scammonium.
Myrrha.

Best Suspended by the aid of a Fixed Oil or Yolk of Egg:—

Ext. Cannabis Indicæ.
Camphora.
Oleum Terebinthinæ.
Chloroformum.

Solutions intended for internal administration are classed as Mixtures in extemporaneous pharmacy, for the reason stated above. The following list of acids and salts comprises most of the solids which are best adapted for use in liquid form, by reason of their solubility in water.

Acidum Citricum.
Acidum Tannicum.
Acidum Tartaricum.
Alumen.
Ammonii Chloridum.
Antimonii et Potassii Tartras.
Barii Chloridum.
Calcii Chloridum.
Calcii Hypophosphis.
Ferri Pyrophosphas.
Ferri Sulphas.
Ferri et Ammonii Citras.
Ferri et Potassii Tartras.
Ferri et Quininæ Citras.
Magnesii Sulphas.
Mangani Sulphas.
Potassii Acetas.
Potassii Bicarbonas.
Potassii Bromidum.
Potassii Carbonas.
Potassii Citras.
Potassii Chloras.
Potassii Hypophosphis.
Potassii Iodidum.
Potassii Tartras.
Potassii et Sodii Tartras.
Morphinæ Acetas.
Morphinæ Hydrochloras.
Morphinæ Sulphas.
Sodii Bicarbonas.
Sodii Boras.
Sodii Carbonas.
Sodii Chloridum.
Sodii Hypophosphis.
Sodii Phosphas.
Sodii Sulphas.

A few require the use of viscid substances as vehicles or correctives. They are as follows:—

Ammonii Carbonas.
Plumbi Acetas.
Potassa.
Potassii Cyanidum.
Hydrargyri Chloridum Corrosivum.

Certain salts are best ordered by prescribing such agents as will when in solution together react upon each other and produce the desired salt. Instances of this may be found in the pharmacopœial processes for most of the official Liquores; some of the salts so produced being the following:—

Ammonii Acetas.
Magnesii Citras.
Potassii Citras.
Ferri Citras.
Ferri Acetas.
Ferri Chloridum.
Ferri Nitras.
Hydrargyri Nitras.
Potassii Arsenis.
Potassii Hydras.
Sodii Hydras.
Soda Chlorata.
Zinci Chloridum.

Certain other substances require the addition of other agents in order to form eligible solutions. Such are the following:—

Quininæ Sulphas,—requires acidulated water for its solution, the acid used being generally Diluted Sulphuric, or the Aromatic Sulphuric. This method of prescribing the salt develops its bitter taste to the utmost, and is often avoided by ordering the drug to be suspended in a viscid liquid, such as Pulv. Acaciæ in Syrup of Ginger. In such a case an officious dispenser anxious to show his smartness by adding some dilute Sulphuric Acid to dissolve the Quinine would thereby defeat the object of the prescriber.

Quinine Sulphate, may be prescribed with Aromatic Spirit of Ammonia, Spirit of Nitrous Ether, Tinctures or other alcoholic preparations together with Glycerin or Syrup and Water. In such cases the salt should be first dissolved in the alcoholic portion of the prescription; then the glycerin or syrup, and finally the aqueous portions should be added gradually. It may also be ordered with Diluted Sulphuric Acid and some vegetable infusion containing Tannin, in which case a precipitate of Quinine Tannate will be produced. This of course should not be filtered, but should be dispensed with a "Shake-label."

For the use of "Velatine" as a vehicle for the use of Quinine Salts, see *ante* under the title CINCHONA.

Chinoidin, Cinchonine Sulphate and **Quinidine Sulphate,**—also require the addition of a dilute mineral acid for their solution in aqueous mixtures.

Iodine,—requires the addition of Potassium Iodide for its solution in a convenient quantity of water, as in the case of the official Liquor Iodi Compositus.

Hydrargyri Iodidum Rubrum, *Red Mercuric Iodide,*—requires the addition of Potassium Iodide or Mercuric Chloride for its aqueous solution.

Potassii Bitartras, *Cream of Tartar,*—requires the addition of Borax or Boric Acid for its solution in water.

Benzoic Acid,—requires the addition of Borax to aid its solubility in water, an equal part of the latter making it 5 times more soluble than when alone.

Lime,—is more soluble in sweetened water than in plain water, the sugar aiding its solution.

Excipients are substances which give form and consistence to prescriptions, and serve as vehicles for the exhibition of the other ingredients. Some of the excipients are *Diluents,* or agents which effect the dilution or division of the active ingredients; while others act in the double capacity of diluents and *Flavoring agents.* The Excipients most generally used in mixtures may be tabulated as follows, viz.:—

Diluents.

Water (Aqua).
Medicated Waters (Aquæ).
Syrups.
Mel Rosæ.
Elixir Aromaticum.

True Excipients.

Acacia (in powder or mucilage).
Tragacanth (in powder or mucilage).
Sugars.
Confections.
Some Extracts.
Yolk of Egg (Vitellus).

Flavoring Agents.

Oleum Amygdalæ Amaræ.
Oleum Cari.
Oleum Caryophylli.
Oleum Cinnamomi.
Oleum Gaultheriæ.
Oleum Sassafras.
Tinctura Aurantii Dulcis.
Tinct. Cardamomi.
Tinct. Cardamomi Comp.
Tinct. Cinnamomi.
Tinct. Gentianæ Comp.
Tinct. Tolutana.
Tinct. Vanillæ.
Tinct. Zingiberis.
Spiritus Anisi.
Spiritus Lavandulæ.
Spiritus Limonis.
Spiritus Myristicæ.
Spiritus Menthæ Piperitæ.
Spiritus Menthæ Viridis.
Syrupus Limonis.
Syrupus Tolutanus.
Syrupus Zingiberis.

Compounding the Mixture is a matter of no slight importance, and one which is best learned at the dispensing counter, though a few directions may not be out of place. In the case of the simplest form of mixture, where two or more fluid preparations are prescribed together, the only operations required are the measuring of the several ingredients and pouring them into the designed vial. In doing this the compounder should pursue a regular and definite order of procedure. Taking in his left hand a graduate of sufficient capacity to hold the whole quantity prescribed, he should walk along the shelves, and with the right hand pour from the stock-bottles the requisite quantity of each ingredient in the order in which they are entered on the prescription. A skillful clerk will hold the graduate between the thumb and first finger, the prescription between the second and third fingers, and the stopper of the stock-bottle between the little finger and the hand, leaving his right hand free for the manipulation of the bottles containing the ingredients.

When an actively poisonous agent is ordered it should always be the last thing put into the mixture. Attention to this rule will prevent the danger of the toxic substance being put in twice.

The order in which the ingredients are put together is not of so much importance in compounding a simple mixture as in the case of an emulsion, and the order of the prescription can usually be followed, with the exception noted in the preceding paragraph. Still, when several alcoholic preparations, syrups and waters are ordered together, it is good practice to first mix the alcoholic fluids, then to add the syrups and finally the water, so as to avoid the precipitation of resinous principles which would occur if the alcoholic solutions were added to the water. Distilled water should always be used, in order to insure uniformity in taste and appearance, and also as a matter of purity and cleanliness. All mixtures should be well shaken before being labelled.

Solids which are comparatively insoluble or only slowly soluble require to be rubbed up in a mortar with one or more of the fluid ingredients. Glass mortars are much employed for this purpose, and many compounders mix all the ingredients in such a mortar before transferring them to their vial. Vegetable powders (as Rhubarb, Ipecac, etc.), or finely pulverized inorganic substances, are often ordered in intimate mixture with water, thickened with mucilage or syrup. In such cases the mixture should be made in a porcelain or wedgewood mortar, enough mucilage or syrup being added at first to make a thick paste, and after this is rubbed smooth the water may be gradually added during the continued process of mixing. This process will answer for all inorganic substances in powder, except Magnesia, which is best mixed by being thrown on the surface of the water, and after it has sunk to the bottom as a uniform sediment the other ingredients may be added, and the whole well shaken. Froth upon the surface of the liquid, which often arises after agitation, and may prevent the corking of the bottle, will quickly subside on the addition of a few drops of alcohol.

The following are samples of prescriptions for medicines to be administered in mixture form :—

Bismuth Mixture for Children.

℞. Bismuthi Subcarbonatis, ʒ ij.
Syrupi Acaciæ,
Aquæ Cinnamomi, āā ℥ ij.

Misce. Signa.—A teaspoonful every hour in choleraic diarrhœa.

Quinine Mixture for Children.

℞. Quininæ Sulphatis (pulv.), ʒ ss.
Acaciæ (pulv.), ... ʒ ss.
Syrupi Zingiberis, . . . ℥ iv.

Fiat mistura. Signa.—A teaspoonful thrice daily.

Mucilagines, *Mucilages*,—are thick, viscid liquids prepared by dissolving gum in water, or by extracting with water the mucilaginous principles from certain plants. They are easily spoiled and should be kept only in small quantities. The official Mucilages number 4, as follows, the two first-named being prepared without heat, the two last-named with heat, viz. :—

Mucilago Acaciæ.
Mucilago Sassafras Medullæ.
Mucilago Tragacanthæ.
Mucilago Ulmi.

Oleata, *Oleates*,—are liquid solutions of metallic salts or alkaloids in Oleic Acid, intended for external administration. They are not definite chemical compounds, though the term is also employed in trade to designate certain solid preparations which are claimed to be chemical compounds of the same acid with various bases. [See under ACIDUM OLEICUM, *ante*, page 78.] There are three official Oleates, as follows, viz. :—

Oleatum Hydrargyri (20 per cent.).
Oleatum Veratrinæ (2 per cent.).
Oleatum Zinci (5 per cent.).

Oleoresinæ, *Oleoresins*,—are liquid preparations consisting principally of natural oils and resins extracted from vegetable substances by percolation with Ether. They differ from fluid extracts in not bearing any uniform relation of Cc to the gramme of drug, in containing principles which though soluble in ether are not in alcohol, and in some instances being devoid of principles which are insoluble in ether but soluble in alcohol. They are the most concentrated liquid preparations of drugs which can be produced, and are prepared by percolating the powdered drug with Ether until exhausted, recovering the greater part of the ether by distillation, and exposing the residue in a capsule to spontaneous evaporation until the remaining ether has evaporated. There are 6 official Oleoresins, viz. :—

Oleoresina Aspidii (10–15).
Oleoresina Capsici (5).
Oleoresina Cubebæ (18–25).
Oleoresina Lupulini (50).
Oleoresina Piperis (5).
Oleoresina Zingiberis (6–8).

The figures in parentheses show the percentage of oleoresin yielded by each drug.

Paints, *Pigmenta*,—are preparations for external use, which cannot be classed with the preceding. They are generally prescribed in skin-diseases, for use over inflamed joints, or for application to the throat with a camel's-hair brush.

℞.	Tinct. Iodi,	℥j.
	Ætheris,	℥iij.
	Tinct. Aconiti,	ʒss.
	Ext. Belladon. Rad. Fl.,	ʒiv.
	Morph. Sulph.,	gr. ij.
	Iodi,	ʒjss.

Sig.—Paint 4 or 5 coats freely over the inflamed and painful parts.

℞.	Alcoholis, Saponis Viridis,	
	Olei Cadini,	aa ℥j.

Sig.—Paint over the part.

℞.	Olei Tiglii,	ʒj.
	Ætheris,	ʒij.
	Tinct. Iodi,	ʒv.

M. Sig.—Paint on once in 3 days.

Pilulæ, *Pills*,—are spherical masses composed of medicinal agents and intended to be swallowed whole. The "*mass*" consists of the active ingredients and the *excipient*, the latter being the substance which gives to the mass its adhesive and plastic qualities. In official pharmacy the excipients are specified both as to composition and quantity in each case, and those directed to be used in the preparation of the 3 official Masses and the 15 official Pills are as follows, viz. :—

5 are made with *Soap and Water*, viz.—Pil. Aloes, Pil. Aloes et Asafœtidæ, Pil. Asafœtidæ, Pil. Opii, Pil. Rhei.
4 are made with *Water* alone, viz.—Pil. Aloes et Mastiches, Pil. Catharticæ Comp., Pil. Catharticæ Vegetabiles, Pil Rhei Comp.
1 with *Syrup*, viz.—Pil. Aloes et Myrrhæ.
1 with *Mucilage of Tragacanth*, viz.—Pil. Antimonii Comp.
1 with *Acacia and Water*, viz.—Pil. Ferri Iodidi.
2 with *Glycerin and Water*, viz.—Pilulæ Phosphori, Pil. Ferri Carbonatis.
1 with *Confection of Rose*, viz.—Pilulæ Aloes et Ferri.
1 with *Honey, Syrup and Water*, viz.—Massa Ferri Carbonatis.
1 with *Glycerin and Honey of Rose*, viz.—Massa Hydrargyri.
1 has no excipient, viz.—Massa Copaibæ, being a resin left after distillation.

The pharmacopœial directions for the formation of the pill-mass vary in each case, but in general they prescribe that the ingredients shall be mixed intimately, then beaten with the excipient to form a mass and divided into a certain number of pills. Two of the official pills are directed to be coated with an ethereal solution of the Balsam of Tolu, viz.—Pilulæ Ferri Iodidi and Pilulæ Phosphori. Full descriptions of the various details of pill-making are given in the section on Extemporaneous Pharmacy. The number of official pills is 15, for the composition of which the student is referred to their several titles in the section of Materia Medica. They are named as follows, viz. :—

Pilulæ Aloes.
Pilulæ Aloes et Asafœtidæ.
Pilulæ Aloes et Ferri.
Pilulæ Aloes et Mastiches.
Pilulæ Aloes et Myrrhæ.
Pilulæ Antimonii Compositæ.
Pilulæ Asafœtidæ.
Pilulæ Catharticæ Compositæ.
Pilulæ Catharticæ Vegetabiles.
Pilulæ Ferri Carbonatis.
Pilulæ Ferri Iodidi.
Pilulæ Opii.
Pilulæ Phosphori.
Pilulæ Rhei.
Pilulæ Rhei Compositæ.

Pills constitute a form of medicine very much used in extemporaneous pharmacy, and one with the preparation of which the compounder should be perfectly familiar, for it will constitute fully one-third of his work at the dispensing counter. Pills should not exceed 5 grains in weight, unless the ingredients are very heavy, as Bismuth, Calomel, Hydrargyrum cum Creta, etc., of which 6, 8, or 10 grains may be made into a pill which may be readily swallowed. A *Bolus* is a similar mass, but larger than a pill, while the names *Granule* and *Parvule* are given to masses smaller than the average pill.

The Process of Pill-Making is briefly as follows : The ingredients ordered in the prescription are separately weighed out in the order of their bulk, commencing with that one of which the smallest quantity is to be used. If any require pulverization they should first be placed in the mortar, and reduced to powder; then the other dry ingredients, next the soft extracts and the excipient selected, and the whole is worked up into a mass, the *Pill-mass*, by the aid of the mortar and pestle. The perfect pill-mass should be uniform throughout, should not show any particles of any one ingredient, should have such a consistence that the pills made from it will retain their shape, should not be too hard, nor too dry, nor should it stick to the fingers. The mortar should be large and shallow, of unpolished wedgewood ware; having a thick, smooth and well-formed bottom, and a pestle which fits it. The operation of working up the mass is one of kneading it between the end of the pestle and the side of the mortar, and if proper ingredients and excipient are used, and if the work is well done, the mass will eventually loosen itself from both mortar and pestle. If it does not do so it should be removed with a spatula when sufficiently worked, and may be kneaded for a few minutes between the fingers. It should then be placed upon the tile or slab previously dusted with a little Lycopodium or Starch in fine powder, and rolled into a long cylinder by the aid of a broad-bladed spatula, until the mass is of a length corresponding to the divisions on the tile-scale which represent the number of pills to be made. The mass should then be placed along the scale, and a cut made through it with the spatula at each division of the scale, the pieces being at once rounded separately into pills by the thumb and two fingers of each hand. A pill-machine is often employed, consisting of two metal plates having semi-cylindrical grooves on one side, and set into wooden boards, the whole forming a convenient apparatus for rolling the mass and then cutting it into the required number of pills by one movement. The pills are then left to dry upon the slab while the label is being written, after which they are placed in a pill-box, or in a wide-mouthed bottle if they contain volatile ingredients, and surrounded by a *Conspergative* powder (Lycopodium, powdered Chalk, dusted Talc), to prevent their adhering together or losing their shape.

Excipients used in pill-making are seldom mentioned in the prescription, but are usually left to the choice of the compounder. Some substances need no excipient, but may be made at once into pills; such being the softer Extracts and some Gum-resins, the former if too hard only needing a little water, and the latter a few drops of spirit to soften them to the required degree of plasticity. Every druggist has his favorite pill-excipient, many using a paste made of powdered Tragacanth 1, Glycerin 3½ and Water 1 part, while others use Extract of Malt, or a mixture of Syrup and powdered Acacia, for general use. Powdered Tragacanth to give tenacity, Glycerin to keep the mass soft, and Water to develop the adhesive qualities of many ingredients, will answer for fully nine-tenths of all the cases which occur in practice. These three excipients should stand on the dispensing counter ready for use, and all ready-made pastes or mixtures should be discarded, as being slovenly, dirty, and liable to change. The excipients described below are those in general use, and are arranged in the order of their comparative importance, viz. :—

Liquid Excipients.

Glycerin,—is a very valuable excipient, as it continually attracts moisture from the atmosphere, and pills made from it do not get hard. It should be always used for Quinine pills. *Glycerites of Starch* or *Tragacanth* are generally useful excipients. The former is official, the latter is made in the proportion of ʒ ss to the ℥.

Glucose,—is a good excipient, being colorless, adhesive, and not readily volatilized at ordinary temperatures. Since its introduction by Mr. Lascheid for this purpose it has steadily grown in favor.

Honey,—may be used for dark-colored substances. It should be evaporated to one-half its bulk, and then if mixed with a little Tragacanth, it makes an excellent excipient for insoluble powders.

Extract of Malt,—is a pretty fair excipient, but has the disadvantage of its dark color.

Syrup,—is a fair excipient for powders, but it should not be used for metallic salts, especially Calomel, which it reduces in a short time. *Syrup of Acacia* is good where there is little room left for the excipient, but if kept too long, pills made with it become very hard and insoluble.

Mucilage of Acacia,—is very adhesive, but not a good excipient for the same reason as given for the syrup.

Water,—is only used alone as an excipient when the ingredients possess sufficient adhesiveness to be developed by the water. Such are the following powders: Aloes, Rhubarb, Kino, Tannic Acid, Opium, Squill, Asafetida,—also Ferric Citrate, Berberine Sulphate, etc.

Alcohol,—is used to soften Camphor, Compound Extract of Colocynth, Guaiac, resinous extracts, gums, etc.

Solid Excipients.

Tragacanth,—is an excellent excipient, especially for substances which are too soft, giving them body and elasticity.

Acacia,—is added to give more adhesiveness than can be obtained from viscid liquids alone. Pills made with it are generally very hard. It is used for Silver Nitrate, which may explode if mixed with vegetable extracts or glucose.

Soap,—is the best for resinous and fatty substances, increasing the solubility of the former. It is more employed in the official pills than any other excipient, but should not be used for substances which are decomposed by an alkali, nor for Tartar Emetic.

Bread-crumb (*Mica Panis*),—is an excellent excipient for Croton Oil, or other powerful liquid substances, as volatile oils.

Confection of Rose,—is too bulky for general use, but is a good excipient for very active agents, like Strychnine, which are used in small quantity.

Althæa,—is good for absorbing and adhesive purposes, but is too bulky for general use.

Petrolatum, Cacao Butter, and **Resin Cerate,**—are used for oxidizable substances, as Potassium Permanganate.

Kaolin,—is well adapted for Silver Nitrate, and other substances which are easily decomposed.

Liquorice,—is an old excipient, but not much employed now. In powder it may be used for oils.

Conspergatives,—are absorbent powders which are dusted upon the finished pills and put around them in the box or vial in which they are dispensed, to keep them from sticking together and losing their shape. Powdered Liquorice was formerly much used for this purpose, but the best conspergatives are Lycopodium, Talc, Althæa, and Rice Flour, the latter especially for white pills.

Substances Suitable for the pilular form of medicine are—

Those acting in small doses.
Those intended to act slowly.
Those to act on the lower bowel.
Heavy, insoluble substances.
Fetid substances.
Vegetable extracts.
Gum-resins, Balsams, Turpentine.

When the basis is an unadhesive substance, one of the other ingredients should be an extract or a vegetable powder, which will form a mass by moisture alone. Attention to this rule in prescribing pills will often prevent the increase of their size by inert excipients.

Substances Difficult to combine, except by peculiar treatment, are met with frequently. The following notes will cover most such cases:—

Aloes,—is best treated on a heated slab with alcohol in very small quantity. Soap is the excipient in the official Pilulæ Aloes.

Butyl Chloral Hydrate,—should be treated with a little Confection of Rose and thick mucilage.

Calcium Sulphide,—should be well triturated with an equal quantity of Sugar of Milk, and then worked up with a little powdered Liquorice-root and Tragacanth Mucilage.

Camphor,—should be powdered with a little alcohol, and may be worked into a pill-mass with Glycerite of Tragacanth after the evaporation of the alcohol.

Carbolic Acid,—requires nearly an equal part of wheaten flour or bread-crumb, with a very minute quantity of Glycerite of Tragacanth. **Creosote** may be made into a mass by the addition of powdered Liquorice with a very little bees' wax. If made into a pill with Silver Oxide it will explode unless the silver salt be first diluted by trituration with Liquorice, Gentian, or some other inert powder.

Iron and Quinine Citrate,—is very deliquescent with most excipients. Canada Balsam is the best for it.

Copaiba.—may be made into pill-mass by the addition of a little Magnesium Carbonate or Wax.

Croton Oil,—is best worked up with bread-crumb, though powdered Liquorice and mucilage may be used.

Ferrous Iodide,—in pill form requires special manipulation and protection to remain unoxidized. The official Pil. Ferri Iodidi is prepared with Iodine and Reduced Iron, has Liquorice, Sugar, and Acacia as excipients, and is protected by a coating of Balsam of Tolu. In other formulæ, Acacia, Althæa, Cacao-butter, Elm-bark, and Liquorice are used as excipients.

Ferrous Sulphate,—is used in Blaud's Pill and in the official Pil. Ferri Compositæ, with Potassium Carbonate, to form by mutual decomposition Ferrous Carbonate, which quickly passes into the ferric salt by exposure. Myrrh in powder and Syrup are the excipients used for the official pill.

Gallic Acid,—makes a good pill with a very small quantity of Glycerin. **Tannic Acid** requires about one-fifth its weight of Glycerin and one-tenth of Mucilage.

Phosphorus,—presents the problem of combining it in pill without letting it oxidize. This is believed to be accomplished by the pharmacopœial directions for the Pil. Phosphori, according to which the Phosphorus is dissolved in Chloroform in a test-tube, then quickly worked into a mass with Althæa, Acacia, Glycerin and Water, and finally the pills are coated by shaking with an Ethereal solution of Balsam of Tolu. Carbon Disulphide is a better solvent, but when it is used the pill-mass retains its disgusting odor.

Potassium Acetate,—requires Canada Balsam to secure its stability in pill form

Potassium Iodide is best manipulated by rubbing it into a smooth paste with a very little water, then adding a small quantity of Liquorice powder. **Potassium Permanganate** should be worked up with Kaolin and a very little water. Resin Cerate, Soft and Hard Paraffin and Cacao-butter are also used as its excipients.

Quinine,—requires very clean hands and tools, and a colorless excipient, as Glycerin or Glucose, to make a nice-looking pill. If one part of Tartaric Acid is added to four of the Quinine salt, the mass will be less likely to crumble and will be of less bulk. Quinine Sulphate may be made into small and soluble pills by simply triturating it with Aromatic Sulphuric Acid ♏iij to each 5 grains of the salt. The moulding into pills should be done at the moment when the mass has begun to dry. A drop of syrup or honey, added at this time, will prevent the too rapid hardening of the mass.

Rhubarb,—in powder makes a good mass with one-fifth of its weight of Glycerin; but Soap is the excipient ordered for the official Pilulæ Rhei.

Substances Unsuited to the pilular form are—

Those requiring large doses, and those which are volatile.
Emetics, and other agents administered for immediate effect.
Essential Oils in quantity exceeding half a drop to each pill.
Oils and other bodies which require much solid matter to make a mass; except those having a very small dose, as Croton Oil.
Deliquescent Salts, unless intended to be used immediately.
Efflorescent Salts, unless deprived of their water of crystallization.

Deliquescent Salts.

Ammonii Iodidum.
——— Nitras.
——— Valerianas.
Auri Chloridum.
Calcii Chloridum.
Chinolin Salts, except the Tartrate, which is stable.
Lithii Citras.
——— Bromidum.
——— Salicylas.
Magnesii Citras.
Potassa.
——— cum Calce.
Potassii Acetas.
——— Carbonas.
——— Citras.
——— Cyanidum.
——— Hypophosphis.
——— Sulphis.
——— Tartras.
Sodii Hypophosphis.
——— Iodidum.
Zinci Bromidum.
——— Chloridum.
——— Iodidum.

Efflorescent Salts.

Alumen (slightly).
Ammonii Carbonas.
——— Phosphas.
Antim. et Potassii Tartras (slightly).
Cupri Acetas.
——— Sulphas.
Magnesii Sulphas (slightly).
Potassii et Sodii Tartras (slightly).
——— Ferrocyanidum (slightly).
Quininæ Bisulphas.
——— Sulphas (after a time).
Soda.
Sodii Acetas.
——— Arsenas (slightly).
——— Benzoas.
——— Boras (slightly).
——— Carbonas.
——— Hyposulphis.
——— Phosphas.
——— Santoninas (slightly).
——— Sulphas.
——— Sulphis.
Strychninæ Sulphas.
Zinci Acetas.
——— Sulphas.

Coated Pills are manufactured upon a large scale by the great drug houses, extensive machinery being employed for the purpose. The coating material used is either Sugar or Gelatin. The U. S. Pharmacopœia directs that two of the official pills shall be coated by being shaken with a solution of Balsam of Tolu in Ether, viz.—Pil. Ferri Iodidi and Pil. Phosphori. In extemporaneous pharmacy it is rarely practicable to coat pills with anything except gold or silver leaf, and this is sometimes directed by the prescriber, the word "*Deaurenter*—let them be gilded" being used in the subscription. To do this neatly the pills should have no trace of powder on them, but should be first coated with a trifle of fresh mucilage by rolling between the mucilage-moistened fingers, each pill being then dropped directly on to a sheet of gold or silver leaf, until a dozen or more are so deposited. The leaf and its pills are then allowed to slide into a globular boxwood shaker, or the leaf may be first placed in the shaker and the pills dropped on it there. A cautious circular movement being given to the shaker the pills are caused to travel around its walls, and when the cover is removed they will be found to have each received an even coating of the metal used. Gold leaf should always be employed for pills of Blue Mass or Asafetida, as silver is amalgamated with the former and turned black by the latter.

Albumen may be used for coating small numbers of pills, which should be of very firm consistence before the coating is applied. Each pill is rolled between two fingers with a little white of egg, and then revolved in a warm pan. Another method of finishing them is, after coating with albumen, to rotate them in a tray with powdered French chalk until their surfaces become smooth and shiny. When carefully done this process gives a very nice finish.

Compressed Pills, as now largely manufactured by several reliable firms, consist of various medicinal powders pressed into pill or tablet shape by machinery. They are extremely convenient preparations for the physician's use, as quite a variety can be carried in a pocket-case, and as slight pressure is sufficient to reduce them to powder, they can be dispensed with facility and accuracy of dosage. The following list includes the most important of these preparations, the figures representing the number of grains in a pill in each case:—

Acid, Arsenous, $\frac{1}{60}$, $\frac{1}{40}$, $\frac{1}{30}$, $\frac{1}{20}$.
—— Benzoic, 5.
—— Gallic, 5.
—— Salicylic, $2\frac{1}{2}$, 5.
—— Salicylic, $2\frac{1}{2}$, and Morphine $\frac{1}{12}$.
—— Tannic, 2, 5.
Aconitina, $\frac{1}{50}$.
Aloes, 2. Aloes et Ferri (U. S. P.).
Aloes, 2, et Myrrh, 1.
Aloes, $\frac{2}{3}$, et Rhei, $1\frac{1}{3}$, et Gentian, $\frac{2}{3}$.
Aloin, $\frac{1}{5}$, $\frac{1}{4}$, $\frac{1}{2}$.
Ammonium Bromide, 5, 10.
Ammonium Chloride, 3, 5, 10.
Atropine, $\frac{1}{60}$.
Bismuth Subcarb., 5.
—— Subnitrate, 5, 10.
Borax, 5.
Caffeine Citrate, 1.
Calcium Sulphide, $\frac{1}{10}$, $\frac{1}{4}$, $\frac{1}{2}$, 1.
Calomel, $\frac{1}{4}$, $\frac{1}{2}$, 1, 2, 3, 5.
Calomel, 2, Opium, 1.
Camphor, Monobromated, 2, 3, 5.
Cathartic Comp. and Vegetab. (U. S. P.).
Cerium Oxalate, 2.
Cinchona Alkaloids (Mixed).
Cinchonine Sulphate, 2, 3, 4, 5.
Cinchonidine Sulphate, 2, 3, 4, 5.
Codeine, $\frac{1}{4}$.
Digitaline, $\frac{1}{60}$.
Extract of Cannabis Indica, $\frac{1}{4}$.
Extract of Ignatia Amara, $\frac{1}{4}$, $\frac{1}{2}$.
Extract of Nux Vomica, $\frac{1}{4}$, $\frac{1}{2}$.
Ferrum (Quevenne's), 1, 2.
Ferrum Arsenate, $\frac{1}{8}$, $\frac{1}{4}$.
—— Proto-carbonate, 3, 5.
—— Lactate, 1.
—— Pyrophosphate, 2.
—— and Quinine Citrate, 2, 3, 5.
Hydrargyrum, 1, 3, 5.
—— Chloridum Corros. $\frac{1}{60}$, $\frac{1}{40}$, $\frac{1}{20}$, $\frac{1}{10}$.
—— Iodidum Rub., $\frac{1}{32}$, $\frac{1}{16}$.
—— Iodidum Flavum, $\frac{1}{10}$, $\frac{1}{8}$, $\frac{1}{6}$, $\frac{1}{4}$.
Ipecac. et Opii, 2, 3, 5.
Morphine Sulphate, $\frac{1}{10}$, $\frac{1}{8}$, $\frac{1}{6}$, $\frac{1}{4}$, $\frac{1}{2}$.

Opium, Deodorized, 1.
Opium, ½, and Lead Acetate, 1½.
Pepsin Saccharated, 2, 5.
Podophyllin, $\frac{1}{10}$, ⅛, ¼, ½, 1, 2.
Potassium Bromide, 5, 10.
—— Chlorate, 5.
—— Iodide, 5.
—— Nitrate, 5.
—— Permanganate, ½, 1, 2.
Quinine Bisulphate, ½, 1, 2, 3, 4, 5.
—— Salicylate, 2.
Quinine Sulphate, ½, 1, 2, 3, 4, 5.
Quinquinine, 2, 3.
Rhubarb, 3. Rhei Co. (U. S. P.).
Rhubarb, 2, and Magnesia, 2.
Salicin, 2½, 5.
Santonin, 1.
Santonin, 1, and Calomel, 1.
Sodium Bicarbonate, 5.
—— Salicylate, 3, 5.
Strychnine, $\frac{1}{100}$, $\frac{1}{60}$, up to $\frac{1}{30}$.
Zinc Phosphide, $\frac{1}{12}$ up to ½.

The following prescriptions represent the composition of a few unofficial pills in general use. A complete pill formulary is easily obtained, being published annually by the principal manufacturers.

Pills of Iron.

℞. Ferri Reducti, ... gr. l.
Mannæ, ... gr. xv.
Glucosi, q. s.
Fiat massa, et div. in pil. xxv.
Sig.—One after each meal.

Emmenagogue Pill (Otto).

℞. Ferri Sulph. Exsic., . . . gr. xlviij.
Pulv. Aloes, ... gr. xij.
Terebinthinæ, ... gr. xxvij.
Ol. Terebinth., ... ♏x.
Fiat massa, et div. in pil. xxx.
Sig.—Two, three times a day.

Hooper's Female Pills.

℞. Pulv. Aloes Socot., . . . gr. xlviij.
Ferri Sulph. Exsic., . . . gr. xxiv.
Ext. Hellebori Nig.,
Pulv. Myrrhæ,
Saponis, ... āā gr. xij.
Pulv. Canellæ Alb.,
Pulv. Zingiberis, . . . āā gr. vj.
Aquæ vel Syrupi, q. s.
Fiat massa, et div. in pil., quisque pondo gr. ijss.
Sig.—One to three at a dose.

Anaphrodisiac and Sedative.

℞. Camphoræ, ... gr. xxx.
Lupulini, ... gr. xx.
Fiat massa, et div. in pil. xx.
Sig.—One thrice daily.

Astringent Pill.

℞. Plumbi Acetatis, ... gr. xvj.
Pulv. Camphoræ, ... gr. xij.
Pulv. Opii, ... gr. iij.
Bismuthi Subcarb., . . . gr. xij.
Ext. Gentianæ, q. s.
Fiat massa, et div. in pil. xij.
Sig.—One thrice daily.

Astringent Pill.

℞. Argenti Nitratis, ... gr. xx.
Pulv. Cretæ (Gallicæ), . . gr. lxxx.
Petrolati, q. s.
Fiat massa, et div. in pil. xl.

Cholagogue Pills (Squibb).

℞. Resinæ Podophylli, . . . gr. vj.
Ext. Belladon. Alcohol, . gr. iij.
Pulv. Capsici,
Pulv. Sacch. Lactis, . . āā gr. xxiv.
Pulv. Acaciæ . . . . . gr. vj.
Glycerini, Syrupi, āā, q. s.
Fiat massa, et div. in pil. xxiv.
Sig.—One or two as required.

Aperient Pills.

℞. Pulv. Aloes Socot., . . . gr. xxiv.
Pulv. Rhei, ... gr. xlviij.
Hydrarg. Chlor. Mitis, . . gr. iv.
Antim. et Potas. Tart., . . gr. ij.
Fiat massa, et div. in pil. xxiv.
Sig.—One or two as needed.

Tonic Pill for Women.

℞. Strychninæ Sulph.,
Acidi Arsenosi, . . āā gr. j.
Ext. Belladonnæ, . . gr. v.
Quininæ Sulph., . . gr. xxxv.
Massæ Ferri Carb., . gr. xc.
Fiat massa, et. div. in pil. xxxv.
Sig.—One three times daily.

Anti-bilious Pills.

℞. Pulv. Scammonii,
Pulv. Aloes Socot.,
Pulv. Gambogiæ,
Hydrarg. Chlor. Mitis,
Potassii Bitart., . . . āā gr. xx.
Ext. Taraxaci, q. s.
Fiat massa, et div. in pil. xx.

Potus, *A Drink,*—is a solution or a mixture intended to be used *ad libitum*, and generally consists of a Potassium or Sodium salt, or a mineral acid, in dilute solution, sweetened and flavored.

The "**Imperial Drink**" is made after the following formula: ℞. Potassii Bitartratis, ʒij; Olei Limonis, ♏v; Aquæ Bullientis, q. s. ad ℥xx. M. Fiat potus. Sig.—Use as a drink.

Pulveres, *Powders,*—are usually prepared extemporaneously, but a few compound ones have been made official, the ingredients being simply directed to be rubbed together until reduced to a fine powder and thoroughly mixed. Special directions are given for the preparation of two, —the Compound Effervescing Powder and the Compound Powder of Morphine. There are 9 official powders, named as follows, viz.:—

Pulvis Antimonialis.
Pulvis Aromaticus.
Pulvis Cretæ Compositus.
Pulvis Effervescens Compositus.
Pulvis Glycyrrhizæ Compositus.
Pulvis Ipecacuanhæ et Opii.
Pulvis Jalapæ Compositus.
Pulvis Morphinæ Compositus.
Pulvis Rhei Compositus.

The composition of each of these preparations will be found in the section on Materia Medica, and under the title from which its name is derived, except that of the Compound Effervescing Powder, which is placed under the title POTASSIUM. Pulvis Ipecacuanhæ et Opii is really a trituration, its ingredients being rubbed together with sugar of milk into a very fine powder.

As prepared extemporaneously Powders are generally compound, and may be mixed on a slab with a spatula, but a much better method of mixing them is by trituration in a mortar. The latter should always be employed except in the case of substances which may explode if so treated, as Potassium Chlorate with oxidizable substances. (See *ante*, page 448.) The diluent best employed in powders is Sugar of Milk, on account of its hardness, its density and its comparative insolubility. A coloring agent, as Carmine in minute quantity, is a useful ingredient, enabling the eye to judge of the degree of mixing and subdivision obtained. Powders containing soluble salts, extracts, volatile oils, camphor, or any other hygroscopic or volatile substances, should be dispensed in waxed paper. For ordinary powders the plain white paper of the drug stores will answer, but a better paper for small powders is one having a high surface finish and made very thin, as the white glazed French demy. Powders are often ordered in Wafers (*Cachets*), to be swallowed without unfolding. The division of powders into the number of Papers (*Chartulæ*) ordered, and folding them neatly, requires a considerable amount of practice. A small machine is used, over which the ends of the papers are bent, in order to have them of the proper size for the box in which they are usually dispensed. If they are to be put into an envelope, less exactness of folding is required, and the mechanical contrivance may be dispensed with.

SUBSTANCES suitable to administration in the form of powders are those which are insoluble, those which would be chemically incompatible in fluid form, and certain pulverizable extracts. Those which are unsuited to this form are such as have a very nauseous taste or odor, substances of which the dose is large, those which are deliquescent, efflorescent or very volatile, and those which liquefy on mixing. A list of deliquescent and efflorescent salts is found on page 488, while the following named, though dry alone, become moist when triturated together, viz.:—

Sodium Sulphate and Potassium Carbonate.
Zinc Sulphate and Lead Acetate.
Camphor and Chloral Hydrate.

Many substances cannot be powdered without the intervention of another body: thus Opium requires a hard substance like Sugar of Milk or Potassium Sulphate, Camphor requires a minute quantity of Alcohol, Myrrh needs Sugar or Gum, etc. Substances, as the alkaloids and their salts, which are very active and are used in very small doses, require some inert substance to give them bulk enough for division and handling. Sugar of Milk will be found the best agent for this purpose. Prescriptions may order the ingredients for a single powder, with directions to dispense a certain number of the same composition; or they may give the quantities for the whole number of powders ordered, with instructions to divide into a certain number. The dispenser should carefully scan the prescription in order to avoid the multiplication of quantities where division is intended. The official powders are enumerated above; and the following formulæ will serve to illustrate those generally prescribed:—

Astringent Powder for Infants.

℞. Plumbi Acetatis, ... gr. ij.
Pulveris Opii, ... gr. ss.
Camphoræ, ... gr. j.
Sacchari Lactis, ... gr. iij.
Trit., et div. in chartulas xij.
Sig.—One every 2 or 3 hours in diarrhœa of infants. For an adult the above represents one dose.

Gastric Sedative.

℞. Bismuthi Subnitratis, . . . ʒj.
Pulveris Rhei,
Pulveris Aromat., ... āā ʒss.
M., et div. in chartulas vj.
Sig.—One before each meal.

Laxative Powder.

℞. Hydrarg. Chlor. Mitis, . gr. x.
Sacchari Lactis, ... gr. xx.
M., et fiant pulv. x.
Sig.—One powder twice daily.

Bismuth and Soda.

℞. Bismuthi Subnitratis,
Sodii Bicarb., ... āā ʒij.
Pulv. Zingiberis, ... gr. xl.
M., et div. in chartulas xij.
Sig.—One after each meal.
Corrective in dyspepsia, acne and eczema.

Antipruritic Powder.

℞. Pulveris Camphoræ, . . . ʒj.
Zinci Oxidi, ... ℥iv.
Pulv. Amyli, ... ℥j.
M., et fiat pulvis.
Sig.—Use locally as a dusting powder to relieve itching.

Catarrh Powder.

℞. Bismuthi Subnitratis, . . ʒiij.
Pulv. Acaciæ, ... ʒj.
Pulv. Talci, ... ʒij.
Morphinæ Muriatis, . . . gr. j.
M. Sig.—Use by insufflation.

COMPRESSED PILLS are really powders which have been compressed into pill shape by machinery. A little pressure from the blade of a spatula will restore them to powder form.

Resinæ, *Resins*,—are solid preparations obtained by precipitating the resinous principles of plants from their alcoholic solution by the agency of water. They differ from alcoholic extracts in containing only those principles which are soluble in alcohol and insoluble in water, while the extracts contain all principles which are soluble in alcohol. Besides Resina itself, which is the residue left after distilling off the volatile oil from Turpentine, there are 4 official Resins, three of which correspond to the above description, and one (Resin of Copaiba) is the residue left after distilling off the volatile oil from Copaiba. They are named as follows :—

Resina Copaibæ.
Resina Jalapæ.
Resina Podophylli.
Resina Scammonii.

Spiritus, *Spirits*,—are alcoholic solutions of volatile substances, which may be solids, liquids or gases. They are officially prepared either by simple solution, by solution with maceration, by gaseous solution, by chemical reaction, or by distillation. The menstruum is Alcohol or Deodorized Alcohol in nearly all instances, 4 having Water in addition, and 2 being alcoholic liquids of a specified alcoholic strength (Whiskey, Brandy). The official Spirits are 25 in number, as follows, viz. :—

Spiritus Ætheris, 32½.	Spiritus Frumenti, 44–50.
Spiritus Ætheris Compositus, 32½.	Spiritus Gaultheriæ, 5.
Spiritus Ætheris Nitrosi, 4.	Spiritus Glonoini, 1.
Spiritus Ammoniæ, 10.	Spiritus Juniperi, 5.
Spiritus Ammoniæ Aromaticus, 9.	Spiritus Juniperi Compositus, 63½.
Spiritus Amygdalæ Amaræ, 1.	Spiritus Lavandulæ, 5.
Spiritus Anisi, 10.	Spiritus Limonis, 5.
Spiritus Aurantii, 5.	Spiritus Menthæ Piperitæ, 10.
Spiritus Aurantii Compositus, 20.	Spiritus Menthæ Viridis, 10.
Spiritus Camphoræ, 10.	Spiritus Myrciæ, 55.
Spiritus Chloroformi, 6.	Spiritus Myristicæ, 5.
Spiritus Cinnamomi, 10.	Spiritus Phosphori, 0.12.
Spiritus Vini Gallici, 39–47.	

The figures placed after Spiritus Frumenti, S. Juniperi Comp., S. Myrciæ and S. Vini Gallici, represent the percentage of absolute Alcohol by weight in each ; those placed after the others indicate the quantity of the principal ingredient in grammes to each 100 cubic centimeters of the preparation. Absolute Alcohol is the menstruum directed for Spiritus Phosphori.

Suppositoria, *Suppositories*,—are solid bodies containing medicinal substances, and intended for introduction into the vagina, rectum or urethra. The Pharmacopœia prescribes a general formula for their preparation, according to which the medicinal portion should be incorporated with Oil of Theobroma by rubbing them together at a temperature of

95° F. The mixture should then be poured into suitable moulds, and cooled on ice or in ice-cold water. Unless otherwise specified they should have the following shapes and weights, corresponding to their several uses:—

Rectal Suppositories,—cone-shaped, about 1 gramme (15 grains) each.
Urethral Suppositories,—pencil-shaped, about 1 gramme (15 grains) each.
Vaginal Suppositories,—globular, about 3 grammes (45 grains) each.

The only official Suppositories are those of Glycerin, (Suppositoria Glycerini), in which Stearic Acid is employed to give the requisite consistence.

In extemporaneous pharmacy Suppositories are usually prepared with Cacao-butter as a basis, but for those intended for the uterus or urethra a mixture of Gelatin and Glycerin is considered the best excipient, being firmer and more plastic than cacao-butter, and more easily handled. Hollow cones of cacao-butter, or some composition resembling it, are kept in the shops, and will be used by the average druggist in filling prescriptions for rectal suppositories unless prohibited, as they save him considerable labor; the active drug being simply placed in the centre of the cone, which is then sealed by a plug fitting into its base. These contrivances are by no means so efficient as the regular suppository, in which the medicinal agent is thoroughly incorporated with the excipient, for the former smear the rectum with a quantity of melted grease before the active ingredient is permitted to come in contact with its walls. The agents used in suppositories are chiefly extracts and alkaloids; some few powders, and a few metallic salts are occasionally employed. Those for the adult rectum should contain about 15 grains of the excipient, for the vagina a drachm of cacao-butter is the average quantity. Those for the uterus and urethra are made of cylindrical instead of conical form, and about the diameter of a No. 9 catheter.

The methods of compounding suppositories are two, viz.:—that by the use of moulds (the official method), and that by hand. The former process is described above, but many prefer the hand method, which is as follows: The medicament is mixed with finely shaved Cacao-butter by the aid of a spatula, on a board or tile lightly dusted with Lycopodium or Starch. After a smooth and uniform mixture is thus obtained, the mass may be rolled into cylindrical form, cut into the required sizes and with the spatula given the required shape. When dispensed, they should be placed in a powder-box, between layers of cotton.

Bougies or *Pencils*, as urethral and uterine suppositories are often termed, may be prepared by melting together White Gelatin 3, Glycerin 1, and Distilled Water 1 part by weight, then adding the medicament, and drawing the mass into a glass tube previously oiled inside. When cold the bougie may be pushed out and cut into suitable lengths.

Suppositories and bougies may be prescribed in the manner illustrated by the following formulæ :—

Anodyne Suppository.

℞. Ext. Opii, ... gr. vj.
Ext. Belladonnæ Fol. Alcoholicum, ... gr. ss.
Ext. Hyoscyami, ... gr. ij.
Olei Theobromæ, q. s.
M. Fiant suppositoria vj.
Sig.—One into the rectum morning and night.

Anthelmintic.

℞. Santonini, ... gr. xij.
Olei Theobromæ, ... ʒj.
M. Fiant suppositoria vj.
Sig.—One into the rectum as directed.

Quinine Suppository.

℞. Quininæ Sulphatis, ... gr. v.
Olei Theobromæ, ... gr. x.
Fiat suppositorium unum, mitte tales sex.

Wade's Bougies.

℞. Iodoformi, ... ʒj.
Bismuthi Subnitrat., . . . ʒj.
Chloralis Hydratis, . . gr. viij.
Morphinæ Sulphat., . . . gr. iij.
Ol. Rosæ, ... ♏x.
Gelatini, et Glycerini, q. s.
M. Fiant bougia xij.
Sig.—One into urethra thrice daily.

Bougie for Gleet.

℞. Zinci Sulphatis, ... gr. vj.
Ac. Carbolici, ... ♏iij.
Pulv. Hydrastis, ... gr. xij.
Ext. Belladonnæ Fol. Alcoholicum, ... gr. xij.
Gelatini, et Glycerini, q. s.
M. Fiant bougia xij.
Sig.—One into urethra night and morning.

In the British Pharmacopœia the following 9 suppositories are described, viz. :—

Suppositoria Acidi Carbolici cum Sapone, *Carbolic Acid Suppositories,*—Carbolic Acid, 12 grains; Curd Soap, in powder, 180 grains; Glycerine of Starch, 40 grains; to make 12 suppositories, each containining 1 grain of Carbolic Acid.

Suppositoria Acidi Tannici, *Tannic Acid Suppositories,*—Tannic Acid, 36 grains; Oil of Theobroma, 144 grains; to make 12 suppositories, each containing 3 grains of Tannic Acid.

Suppositoria Acidi Tannici cum Sapone, *Tannic Acid Suppositories with Soap,*—Tannic acid, 36 grains; Glycerine of Starch, 30 grains; Curd Soap, in powder, 100 grains; Starch, in powder, q. s.; to make 12 suppositories, each containing 3 grains of Tannic Acid.

Suppositoria Glycerini, *Glycerine Suppositories,*—Gelatine, cut small, ½ oz.; Glycerine, by weight, 2½ ozs.; Distilled Water, a sufficiency to make as many suppositories as desired, according to size, each containing 70 per cent. by weight of Glycerine.

Suppositoria Hydrargyri, *Mercurial Suppositories,*—Mercurial Ointment, 60 grains; Oil of Theobroma, 120 grains; to make 12 suppositories, each containing 5 grains of Mercurial Ointment.

Suppositoria Iodoformi, *Iodoform Suppositories,*—Iodoform, 36 grains; Oil of Theobroma, 144 grains; to make 12 suppositories, each containing 3 grains of Iodoform.

Suppositoria, Morphinæ, *Morphine Suppositories,*—Morphine Hydrochlorate, 6 grains; Oil of Theobroma, 174 grains; to make 12 suppositories, each containing ½ grain of the Morphine salt.

Suppositoria Morphinæ cum Sapone, *Morphine Suppositories with Soap,*—Morphine Hydrochlorate, 6 grains; Glycerine of Starch, 30 grains; Curd Soap, in powder, 100 grains; Starch, q. s. to make 12 suppositories, each containing ½ grain of the Morphine salt.

Suppositoria Plumbi Composita, *Compound Lead Suppositories,*—Acetate of Lead, 36 grains; Opium, in powder, 12 grains; Oil of Theobroma, 132 grains; to make 12 suppositories, each containing 3 grains of Lead Acetate and 1 grain of Opium.

Syrupi, *Syrups,*—are concentrated solutions of Sugar in Water or in aqueous liquids. They sometimes contain Acetic Acid, and occasionally Alcohol; and are termed *simple, medicated* or *flavored,* according as they are simple solutions of sugar in water alone, or contain soluble medicinal substances, or flavoring ingredients. The Sugar used should be very dry, and its official description corresponds with the granulated sugar of commerce. The permanency of these preparations chiefly depends on their possessing the proper relative proportions of sugar and water. They are prepared either by solution with heat, by agitation without heat, by adding a medicated liquid to simple syrup, by digestion or maceration, or by cold percolation; these processes being all officially directed except the last. They are best preserved by being poured while hot into pint bottles, which should be corked securely while full, and the tops dipped into melted sealing-wax. Fermented syrups are useless for dispensing purposes. The number of official syrups is 32, as follows, viz.:—

Syrupus.
Syrupus Acaciæ.
Syrupus Acidi Citrici.
Syrupus Acidi Hydriodici.
Syrupus Allii.
Syrupus Altheæ.
Syrupus Amygdalæ.
Syrupus Aurantii.
Syrupus Aurantii Florum.
Syrupus Calcii Lactophosphatis.
Syrupus Calcis.
Syrupus Ferri Iodidi.
Syrupus Ferri, Quininæ et Strychninæ Phosphatum.
Syrupus Hypophosphitum.
Syrupus Hypophosphitum cum Ferro.
Syrupus Ipecacuanhæ.
Syrupus Krameriæ.
Syrupus Lactucarii.
Syrupus Picis Liquidæ.
Syrupus Pruni Virginianæ.
Syrupus Rhei.
Syrupus Rhei Aromaticus.
Syrupus Rosæ.
Syrupus Rubi.
Syrupus Rubi Idæi.
Syrupus Sarsaparillæ Compositus.
Syrupus Scillæ.
Syrupus Scillæ Compositus.
Syrupus Senegæ.
Syrupus Sennæ.
Syrupus Tolutanus.
Syrupus Zingiberis.

Tincturæ, *Tinctures*,—are alcoholic solutions of medicinal substances; and with one official exception (Tincture of Iodine), are made from non-volatile bodies. They are prepared by percolation, maceration, solution or dilution; the menstrua employed being chiefly Alcohol, Diluted Alcohol, and Alcohol and Water in various proportions. In one case (Tincture of Sanguinaria) Acetic Acid is an ingredient of the menstruum, in two the Aromatic Spirit of Ammonia, and in several Glycerin is contained therein.

For **Tinctures of Fresh Herbs** (*Tincturæ Herbarum Recentium*), the Pharmacopœia prescribes a general formula, according to which, when not otherwise directed, they are to be prepared by macerating 50 grammes of the fresh herb, bruised or crushed, in 100 cubic centimeters of alcohol, for 14 days, then expressing the liquid and filtering.

The official Tinctures number 71, and are named in the following list, the figures placed after each name giving the number of grammes of the drug in each 100 cubic centimeters of the tincture.

Tinctura Aconiti, 35.
Tinctura Aloës, 10.
Tinctura Aloës et Myrrhæ, 10.
Tinctura Arnicæ Florum, 20.
Tinctura Arnicæ Radicis, 10.
Tinctura Asafœtidæ, 20.
Tinctura Aurantii Amari, 20.
Tinctura Aurantii Dulcis, 20.
Tinctura Belladonnæ Foliorum, 15.
Tinctura Benzoini, 20.
Tinctura Benzoini Composita, 12.
Tinctura Bryoniæ, 10.

Tinctura Calendulæ, 20.
Tinctura Calumbæ, 10.
Tinctura Cannabis Indicæ, 15.
Tinctura Cantharidis, 5.
Tinctura Capsici, 5.
Tinctura Cardamomi, 10.
Tinctura Cardamomi Composita, 2.
Tinctura Catechu Composita, 10.
Tinctura Chiratæ, 10.
Tinctura Cimicifugæ, 20.
Tinctura Cinchonæ, 20.
Tinctura Cinchonæ Composita, 10.
Tinctura Cinnamomi, 10.
Tinctura Colchici Seminis, 15.
Tinctura Croci, 10.
Tinctura Cubebæ, 20.
Tinctura Digitalis, 15.
Tinctura Ferri Chloridi, 13.6.
Tinctura Gallæ, 20.
Tinctura Gelsemii, 15.
Tinctura Gentianæ Composita, 10.
Tinctura Guaiaci, 20.
Tinctura Guaiaci Ammoniata, 20.
Tinctura Humuli, 20.
Tinctura Hydrastis, 20.
Tinctura Hyoscyami, 15.
Tinctura Iodi, 7.
Tinctura Ipecacuanhæ et Opii, 10.
Tinctura Kino, 10.
Tinctura Krameriæ, 20.
Tinctura Lactucarii, 50.
Tinctura Lavendulæ Composita, 0.8.
Tinctura Lobeliæ, 20.
Tinctura Matico, 10.
Tinctura Moschi, 5.
Tinctura Myrrhæ, 20.
Tinctura Nucis Vomicæ, 20.
Tinctura Opii, 10.
Tinctura Opii Camphorata, 0.4.
Tinctura Opii Deodorati, 10.
Tinctura Physostigmatis, 15.
Tinctura Pyrethri, 20.
Tinctura Quassiæ, 10.
Tinctura Quillajæ, 20.
Tinctura Rhei, 10.
Tinctura Rhei Aromatica, 20.
Tinctura Rhei Dulcis, 10.
Tinctura Sanguinariæ, 15.
Tinctura Scillæ, 15.
Tinctura Serpentariæ, 10.
Tinctura Stramonii Seminis, 15.
Tinctura Strophanthi, 5.
Tinctura Sumbul, 10.
Tinctura Tolutana, 10.
Tinctura Valerianæ, 20.
Tinctura Valerianæ Ammoniata, 20.
Tinctura Vanillæ, 10.
Tinctura Veratri Viridis, 40.
Tinctura Zingiberis, 20.

Triturationes, *Triturations,*—form a class of powders having for their diluent Sugar of Milk, and possessing a definite relation between the active ingredient and the diluent. The Pharmacopœia prescribes a general formula for these preparations, according to which 10 grammes of the Substance and 90 of Sugar of Milk are to be well mixed by a spatula, the latter being added in successive quantities, and both triturated in a mortar until the substance is intimately mixed with the diluent and finely comminuted. There is but one official Trituration (Trituratio Elaterini), though the Pulvis Ipecacuanhæ et Opii practically belongs to this class, except in respect of the proportions prescribed. Sugar of Milk is employed as the diluent because of its hardness and its comparative insolubility. The first of these qualities secures the fine comminution of the active ingredient, whereby the action of the medicine is increased and better distributed. Its insolubility makes it the best diluent for powders or triturations administered from a spoon or glass with fluid, as is so often done, for unlike cane sugar it is not readily dissolved and does not leave the active substance behind on the surface of the utensil. Triturations are excellent forms for the administration of powerful alkaloids, which may thus be divided with great accuracy into the minute quantities required. Mercury and its salts are especially adapted to this method of preparation, being more uniformly divided and hence more active than when administered in any other form. Triturations of mercury with sugar were commonly used in England a hundred years ago, and triturations of many substances were employed by the Arabian physicians of the 13th century; but the subsequent adoption of these preparations by the homœopathists produced such a prejudice against them in the ranks of the regular profession, that until recently any one using them stood in danger of being stigmatized as a homœopath. Their recognition by the U. S. Pharmacopœia under their proper title does away with any such implication, though it is much to be regretted that the compilers of the last revision of the British Pharmacopœia should have shown their fear of a name by continuing the title "Pulvis Elaterini Compositus" to designate a preparation which in every respect is a trituration. The preparations of Pepsin daily prescribed by physicians all over the country are really sugar-of-milk triturations of that ferment, and not pure Pepsin as many suppose. Prof. H. G. Piffard, Med. Dept. Univ. of the City of New York, in his treatise on the Materia Medica and Therapeutics of the Skin (N. Y., 1881), after detailing several microscopical examinations of pills and triturations, uses the following language:—

> "It is to be expected, therefore, that the protoiodide trituration will prove, *ceteris paribus*, more active than the pill, and such we have found it. . . . Since we have used the triturations, however, in preference to the ordinary pills, patients more rarely complain of disagreeable sensations. We have been enabled to materially reduce the size of the dose in order to obtain the desired effect. In other words, a larger proportion of the drug is utilized for *specific* purposes, while but a small amount remains to give rise to *local irritation*. . . . . I have nothing to add to this, except that I continue to use triturations of Mercury and other substances with increasing satisfaction. Beside those mentioned I employ Calomel, Cyanide of Mercury, Black Oxide of Mercury and Corrosive Sublimate in this form."

The following examples will illustrate the mode in which Triturations may be prescribed:—

℞. Hydrarg. Oxidi Flavi, . . gr. ss.
Sacchari Lactis, ... gr. l.
Trit., et div. in chartulas xxiv.
Sig.—One twice daily.

℞. Hydrarg. Chlor. Mitis, . . gr. x.
Sacchari Lactis, q. s.
Trit., et div. in chartulas x.
Sig.—One powder daily.

℞. Morphinæ Sulph., ... gr. j.
Sacchari Lactis, ... gr. xvj.
Trit., et div in chartulas viij.
Sig.—One every six hours.

℞. Acidi Arsenosi, ... gr. ss.
Sacch. Lactis, ... gr. xl.
Trit., et div. in chartulas xx.
Sig.—One powder thrice daily.

Trochisci, *Troches*,—also called Pastilles, Tablets, or Lozenges,—are small flattened cakes of medicinal substances, prepared from a mass made with a basis of Sugar, some having Mucilage of Tragacanth, others Orange-flower Water, Syrup of Tolu, etc., as excipients. They are convenient preparations for the pocket-case, and are especially useful when the active ingredients are intended to come into contact with the mucous surface of the throat. There are 15 official Troches, named as follows, viz.:—

Trochisci Acidi Tannici.
Trochisci Ammonii Chloridi.
Trochisci Catechu.
Trochisci Cretæ.
Trochisci Cubebæ.
Trochisci Ferri.
Trochisci Glycyrrhizæ et Opii.
Trochisci Ipecacuanhæ.
Trochisci Krameriæ.
Trochisci Menthæ Piperitæ.
Trochisci Morphinæ et Ipecacuanhæ.
Trochisci Potassii Chloratis.
Trochisci Santonini.
Trochisci Sodii Bicarbonatis.
Trochisci Zingiberis.

Troches and Tablets are not readily compounded at the dispensing counter, but may be obtained in all first-class shops, being prepared in great variety by the manufacturers. Besides the official Troches, those named in the following list are generally for sale :—

Troches (*Lozenges*).

Alum, gr. ij.
Alum, gr. 1½, Catechu, gr. ij.
Ammonium Chloride, gr. ij, and Cubeb, gr. j.
Ammon. Chlor., gr. ij, Liquorice, gr. viij.
Benzoic Acid, gr. ½.
Borax, gr. iij.
Bismuth, gr. ij, and Charcoal, gr. v.
Bronchial,—Oleores. Cubebæ, gr. $\frac{1}{5}$, Tolu, gr. $\frac{1}{5}$, Ol. Sassafras, gr. $\frac{1}{10}$, and Ext. of Liquorice, gr. vij.
Brown Mixture.
Carbolic Acid, gr. j.
Ginger and Sodium Bicarbonate.
Guaiac, gr. ij.
Kino, gr. ij.
Lettuce, gr. j.
Lime-juice.
Logwood, gr. ij.
Magnesia, gr. iij.
Pellitory, gr. j.
Pepsin, gr. iij, Charcoal, gr. iij, Magnesia, gr. ij, and Ginger, gr. j.
Potassium Bitartrate, gr. iij.
Potassium Citrate, gr. iij.
Santonin, gr. ½, and Calomel, gr. ½.

Compressed Tablets.

Ammonium Chloride, gr. iij.
Charcoal, gr. x.
Cocaine Hydrochlorate, gr. $\frac{1}{6}$, etc.
Dover's Powder, gr. v.
Mercury, Yellow Oxide, gr. $\frac{1}{200}$.
Pepsin and Pancreatin.
Potassium Bicarb., gr. v.
Potassium Chlorate, gr. v.
Potas. Chlorate and Borax, āā gr. 2½.
Potas. Chlorate and Ammon. Chloride.
Spencer's Chloramine Pastilles.
Sodium Bicarb., gr. iv, Ammon. Carb., gr. ¼, Ol. Menth. Pip., gtt. ⅙.
Sodium Salicylate, gr. iij.
Antiseptic. Hydrarg. Chlor. Corr., gr. vijss.
Fehling's Test for grape-sugar in the urine.

Hypodermic Tablets.

Morphine Sulphate, gr. $\frac{1}{12}$ to ½.
Morph. Sulph. and Atropine Sulph.
Atropine Sulphate, gr. $\frac{1}{200}$–$\frac{1}{50}$.
Strychnine Sulphate, gr. $\frac{1}{100}$.
Apomorphine Muriate, gr. $\frac{1}{20}$–$\frac{1}{10}$.
Pilocarpine Muriate, gr. $\frac{1}{20}$–½.
(And several others.)

Unguenta, *Ointments*,—are soft, fatty mixtures of medicinal agents with a basis of lard, petrolatum, or fixed oils with a solid fat such as wax or spermaceti. They are intended for application to the skin by inunction, and have a melting point which is below the ordinary temperature of the human body. Of the 23 official Ointments 1 is prepared by chemical reaction, (Unguentum Hydrargyri Nitratis) ; 3 by fusion and 17 by incorporation of the ingredients with each other by mixing them by trituration or through the agency of a spatula and a porcelain slab. *Unguentum* itself is prepared by fusing together 80 of Lard and 20 of yellow wax, and is the basis of 3 other ointments, while 14 have Benzoinated Lard as their basis.

Unguentum.
Unguentum Acidi Carbolici (5).
Unguentum Acidi Tannici (20).
Unguentum Aquæ Rosæ.
Unguentum Belladonnæ (10).
Unguentum Chrysarobini (5).
Unguentum Diachylon.
Unguentum Gallæ (20).
Unguentum Hydrargyri (50).
Ung. Hydrargyri Ammoniati (10).
Ung. Hydrargyri Nitratis (7).
Ung. Hydrargyi Oxidi Flavi (10).
Ung. Hydrargyri Oxidi Rubri (10).
Unguentum Iodi (4).
Unguentum Iodoformi (10).
Unguentum Picis Liquidæ (50).
Ung. Plumbi Carbonatis (10).
Ung. Plumbi Iodidi (10).
Ung. Potassii Iodidi (12).
Unguentum Stramonii (10).
Unguentum Sulphuris (30).
Unguentum Veratrinæ (4).
Unguentum Zinci Oxidi (20).

The figures in parentheses show the percentage of extract or other active ingredient in the ointment. The composition of each may be found in the section on Materia Medica under the title from which the preparation is named, except Unguentum, which will be found under the title ADEPS, and Unguentum Diachylon under PLUMBUM.

Ointments and Cerates are frequently ordered on extemporaneous formulæ, though the numerous official preparations of these classes would seem to give the physician a sufficiently wide field for selection. The basis used is usually either the official Ceratum or Unguentum, but Petrolatum, Lard, Lead Plaster with a fixed oil, etc., may be used. Lard is probably the best basis for all ointments, as it softens the skin better than any other similar substance. Its disadvantage is that it soon becomes rancid, so that preparations made with it must be quickly used. *Cerates* only differ from ointments in their firmer consistence, melting at temperatures above 104° F., while the latter melt below the ordinary temperature of the body. *Oleates* are described fully on page 78.

The process of compounding an ointment or a cerate is sufficiently simple, being generally a mere matter of triturating the ingredients together in a mortar, or of their incorporation on a slab by means of a spatula. Rarely will melting be required in the compounding of extemporaneous ointments. When extracts, powders or gritty substances are ordered, the ingredients should be first pulverized into a fine powder, then triturated with a small quantity of the basis into a smooth, impalpable paste; the remainder of the basis being added gradually, until the whole is thoroughly incorporated. A warm mortar may be required for hard extracts. Soluble salts should be triturated with a little water before adding the excipient. Camphor needs a little alcohol to enable it to be pulverized; and Iodine should be rubbed to a fine powder, then a little alcohol added and finally the excipient by degrees. Sulphur Iodide requires persevering work with a small portion of olive oil. Borax should be triturated with glycerin and Red Mercuric Oxide with distilled water. A bone or horn spatula should be used for all ointments, as steel or iron blades will injure many substances, particularly alkaloids, free acids, tannin or iodine, and several of the mercurial salts. Volatile substances should be added last, and quickly worked in, so that their evaporation may be as slight as possible.

Ointments are dispensed usually in amber-colored glass pots with wooden or metallic covers, or in porcelain jars called *Gallipots*. In hospital and dispensary practice the common chip pill-box is used, but soon becomes excessively dirty and disagreeable to handle.

Unguentum Iodoformi Compositum.

℞. Iodoformi, ... ʒj
Ol. Anisi, ... ♏xx.
Ol. Rosæ,
Ol. Ylang-ylang, . . āā ♏v.
Ung. Aquæ-Rosæ, . . . ℥j.
M. Fiat unguentum.
Sig.—Ointment.

Unguentum Anti-pruriticum.

℞. Camphoræ,
Chloralis Hydrat., . . āā ʒj.
Tere una ad liquorem, dein
adde cum tritu—
Unguenti Aquæ Rosæ, . ℥j.
M. Fiat unguentum.
Sig.—Ointment for itching.

Vina, *Wines*,—when medicated are practically the same as tinctures. The menstruum directed to be used is the official White Wine (Vinum Album), which should contain from 10 to 14 per cent. by weight of absolute alcohol. It is, however, reinforced by the addition of alcohol to the amount of 15 per cent. in all the medicated wines except that of Ipecac, which has 10 per cent. In the two Ferric Wines the alcoholic reinforcement is in the shape of the tincture of sweet orange peel. The official Wines are 10 in number, 2 of which are not medicated, and stand first in the following list; four are prepared by solution or admixture, 2 by percolation and 2 by maceration during seven days. They are named as follows:—

Vinum Album, 10–14.
Vinum Rubrum, 10–14.
Vinum Antimonii, 0.4
Vinum Colchici Radicis, 40.
Vinum Colchici Seminis, 15.
Vinum Ergotæ, 15.
Vinum Ferri Amarum, 5.
Vinum Ferri Citratis, 4.
Vinum Ipecacuanhæ, 10.
Vinum Opii, 10.

The figures placed after the first two show the percentage of absolute alcohol by weight required in each; those placed after the others indicate the quantity of the principal ingredient in grammes to each 100 cubic centimeters of the preparation.

PART III.

SPECIAL THERAPEUTICS.

Authorities. The principal authorities to whom references are made, with their initials, are included in the following list. When a statement is not followed by any reference by name or initial, it is to be understood as coming from the writer of this book.

REFERENCES AND BIBLIOGRAPHY.

(A) *Aitken.*—The Science and Practice of Medicine, by Wm. Aitken.
(Ag) *Agnew.*—The Principles and Practice of Surgery, by D. Hayes Agnew.
(B) *Bartholow.*—Materia Medica and Therapeutics; also On the Antagonism between Medicines and between Remedies and Diseases, by Roberts Bartholow.
(Br) *Brunton.*—Pharmacology, Therapeutics and Materia Medica, by T. Lauder Brunton.
(C) *Carter.*—A Practical Treatise on Diseases of the Eye, edited by Green.
(Cl) *Clarke.*—A Manual of the Practice of Surgery, by W. Fairlie Clarke.
(DaC) *Da Costa.*—Notes of Clinical Lectures, delivered by Professor J. B. Da Costa, at the Pennsylvania and Jefferson Hospitals.
(D) *Druitt.*—A Manual of Modern Surgery, by Robert Druitt.
(E) *Emmet.*—Principles and Practice of Gynæcology, by Thos. Addis Emmet.
(El) *Ellis.*—A Practical Manual of Diseases of Children, by Edward Ellis.
(F) *Fothergill.*—The Practitioner's Handbook of Treatment, by J. M. Fothergill.
(G) *Goodell.*—Lessons in Gynæcology, by William Goodell.
(H) *Hamilton.*—Nervous Diseases, etc., by Allan McLane Hamilton.
(L) *Leishman.*—A System of Midwifery, by William Leishman.
(M & P) *Meigs and Pepper.*—Diseases of Children, by J. F. Meigs and Wm. Pepper.
(N) *Niemeyer.*—A Text-book of Practical Medicine, by Felix von Niemeyer.
(O) *Osler.*—The Principles and Practice of Medicine, by Wm. Osler.
(P) *Phillips.*—Materia Medica and Therapeutics, by Chas. D. F. Phillips.
(Pf) *Piffard.*—Materia Medica and Therapeutics of the Skin, by H. G. Piffard.
(R) *Ringer.*—A Handbook of Therapeutics, by Sidney Ringer.
(Ros) *Rosenthal.*—Diseases of the Nervous System, by M. Rosenthal.
(S) *Stillé.*—Therapeutics and Materia Medica, by Alfred Stillé.
(St) *Sturgis.*—The Student's Manual of Venereal Diseases, by F. R. Sturgis.
(T) *Tanner.*—An Index of Diseases and their Treatment, by Thos. H. Tanner.
(Tr) *Trousseau and Pidoux.*—On Therapeutics, by Trousseau, Pidoux, and Paul.
(Tt) *Tait.*—Diseases of Women, by Lawson Tait.
(W) *Wood.*—Therapeutics, its Principles and Practice, by H. C. Wood.
(Wa) *Waring.*—Practical Therapeutics, edited by Buxton.

Besides the above-named, occasional references are made to other works by the same authors. References will also be found, with names in full, to Anstie, Brown-Séquard, Clymer, Cohen, Flint, Fordyce-Barker, Gross, Hammond, Hilton, Lister, Loomis, Mitchell, Nélaton, Noyes, Nussbaum, Ricord, Roosa, Simpson, A. A. Smith, Thomas, and many others.

Applied Therapeutics may be studied either with the various therapeutic agents as the objects of chief consideration, as in the first part of this work; or with the different diseases and morbid conditions forming the objects of study in respect to their modification and treatment by medicines. In the following pages the latter method is followed, the therapeutics of each affection being exhibited in the form of an Analytical Index to the recognized text-books of the day. Every indication for the use of a drug, or statement regarding its value, is followed by the initial (in parenthesis) of its author: these references enabling the book to be used as an Index to the Authorities, for more strict differentiation between indicated remedies,—while the brief analyses given include enough to make each section a synopsis of the most advanced therapeutics of the disease named by its title.

Abdominal Plethora.

Cathartics. The saline and hydragogue cathartics are of value in congestion of the portal circulation (B). **Saline Mineral Waters**, especially the purgative saline waters, as Vichy and Saratoga, in plethora of the abdominal viscera (B). **Grape-cure** has helped many cases, particularly those of hepatic engorgement and sluggish portal circulation; is best used after a preliminary course of powerful mineral waters (P). **Aliment** is very important. A dry diet is particularly indicated in cases of dyspepsia and hepatic enlargement due to excessive beer-drinking. Avoid much bread, also salted or twice-cooked meats, rich sauces, solid vegetables, especially cucumbers, soups and fruits. Biscuits, fresh meat, lemons, fish, fowl and game, may be used. [Compare HEPATIC CONGESTION, OBESITY.]

Prescriptions.

℞. Potassii Bicarbonatis,
Sodii Sulphatis, ... āā ℥iv.
Dissolve in 1½ pint of Water, and add
Acidi Tartarici (cryst.), . . ℥ij.
Cork quickly and firmly. ⅓d to be taken thrice daily.

℞. Resinæ Podophylli, . . . gr. vj.
Ext. Colocynthidis Co., . gr. xij.
Ext. Belladonnæ Fol.
Alcoh., ... gr iij.
Fiat massa, et div. in pil. no. xij.
Sig.—One pill every night.

Abortion.

Opium, cautiously in threatened abortion, is often very valuable (Wa);—the tincture, ♏xx–xxx by rectum (Parvin). Opium to check uterine action and Ergot to restrain hemorrhage (B). **Ergot**, small tonic doses give excellent results in threatened abortion (P). **Tannin**, combined with Opium and Ipecac (W). **Cimicifuga**, to prevent miscarriage when uterus is irritable and prolapsed (R). **Savine**, the dried powder of the leaves, gr. xv–xx, thrice daily, one of the most powerful remedies against the hemorrhage indicative of approaching abortion (Wa); the tincture in doses of 5 to 10 drops, every ½ to 3 hours, useful against the hemorrhage (P). **Viburnum Prunifolium**, in threatened and habitual abortion, has a very high reputation. **Aurum Chloride**, to avert the tendency to habitual abortion (B). **Iron**, with Potassium Chlorate, throughout the pregnancy, when fatty degeneration the cause of habitual abortion (McLane). **Asafœtida**, is highly efficient in habitual abortion; given in pills of gr. jss each, 2 daily, gradually increased to 10 daily, as soon as a new pregnancy occurs, and continued until the labor is over (Turazzo). **Tamponade**, of the cervix uteri, with cotton or sponge, dipped in vinegar or glycerin, when abortion is inevitable and it is desirable to hasten it and restrain hemorrhage. Empty uterus thoroughly with the finger, placenta-forceps liable to do harm (Barker). **Abortifacients**, see pages 48 and 248. Quinine and Ergotin, of each gr. ij in pill every 3 hours, the routine abortifacient of many irregular practitioners. Only by the production of such violent irritation of the abdominal and pelvic organs as generally endangers life, can the pregnant uterus be stimulated to expel its contents (P). The abortifacient effect of Savine and other drugs cannot be obtained unless by the administration of a quantity sufficient to endanger life (B).

Prescriptions.

℞. Ext. Ergotæ Fluidi, . . . ʒ v.
Tinct. Opii Deodorat., . . fʒ iij.
Syrupi Limonis, ... ℥ j.
M. Sig.—A teaspoonful thrice daily.

℞. Acidi Tannici, ... gr. xv.
Pulv. Ipecacuanhæ, . . . gr. xij.
Extracti Opii, ... gr. iij.
Ft. pil. xij. Sig.—One every six hours.

Abscess.

Poultices to check or to assist in maturation, may be smeared with Belladonna or Opium (R). **Belladonna,** as plaster to subdue (B); painted around areola (Wa); internally often successful in aborting (R). **Calcium Sulphide,** half-grain doses frequently repeated, to abort abscess or to hasten formation of pus (B); gr. $\frac{1}{10}$ every hour or two, gives striking results in healing large abscesses (R). **Calcium Phosphate,** in large abscesses (R). **Mercury and Morphine,** the Oleate locally, diminishes induration due to old abscesses and prevents the formation of new ones (R). **Carbolic Acid,** a weak solution as injection after evacuation, also as a dressing (Lister). **Silver Nitrate,** a strong solution in Nitrous Ether if applied early to adjacent surface will check inflammation (B). **Blisters or Iodine,** as counterirritants around or adjacent to seat of disease (R). **Potassium Permanganate,** ʒj to the pint of water, to correct fetor (B). **Iodine,** the tincture injected after opening large abscesses (R); especially in scrofulous abscess (Wa). **Salicylic or Boracic Acid,** as dressings (B). **Sarsaparilla,** a very useful remedy in chronic abscess with profuse discharge (P). **Cod-liver Oil,** improves and lessens discharge from scrofulous abscesses (Wa). **Surgical.** Opening necessary in all deep abscesses, or when on face, near anus, mammary, or if danger of its opening into an internal cavity. Open with grooved director and forceps (Hilton). Never open a deep abscess with a plunge. Drainage-tube may be required, also irrigation of the cavity and pressure (Agnew). Weaning of child necessary in chronic mammary abscess (Gross). Psoas abscess may result from strain or laceration of muscle, as by heavy lifting, effort to recover balance when skating, etc., as well as from spinal disease. Symptoms often obscure and simulating those of chronic malaria. Early opening by lumbar incision necessary; then tonics, good food, and daily irrigation of the cavity with an antiseptic solution. [Compare SUPPURATION, CARBUNCLE.]

Prescriptions.

℞. Syrupi Ferri, Quininæ et
Strychninæ Phosphatum, . ℥ vj.
Sig.—A teaspoonful in water thrice daily.
To repair waste from suppuration.

℞. Syrupi Hypophosphitum, . ℥ vj.
Sig.—A dessertspoonful thrice daily.

℞. Quininæ Sulph., ... ʒ j.
Ferri Pyrophosphatis, . . ʒ j.
Strychninæ Sulph., . . . gr. j.
Ac. Phosphor. Dil., . . . fʒ ij.
Syrupi Zingiberis, ... f℥ ij.
Aquæ, q. s. *ad* . . . . . ℥ iv.
M. Fiat mistura. Sig.—A teaspoonful thrice daily.

Acidity.

Acids, Hydrochloric or Phosphoric before meals; acid wine, a genuine Rhine wine best; Sulphurous Acid ♏v–xxx well diluted; for acid fermentation of starchy foods (R); acids after meals for alkaline pyrosis (R). **Tannic Acid**, useful in pill, gr. iv with ♏j of Glycerin (B). **Carbolic Acid**, often arrests eructations (B). **Alkalies**, after meals for immediate relief, effects only temporary, Bicarbonates best (R); frequent use of alkalies enhances the mischief (B). **Nux Vomica**, gtt. ij–iij of tincture before meals, excellent in small doses (B); especially in acidity of pregnancy (R). **Pulsatilla**, ♏v of tincture every 4 hours in acid dyspepsia (P). **Silver Oxide**, extremely useful (B). **Manganese Oxide**, gr. x–xx of the purified black oxide relieves (B). **Kino**, a favorite remedy (B). **Ipecacuanha**, in acidity of pregnancy (R). **Mercury**, gr. ss of gray powder ter in die, when acidity with clayey stools (R). **Atropine**, the sulphate, thrice daily by mouth, gave excellent results in a case of gastric hypersecretion of acid; after the third day pain had stopped and vomiting ceased. **Bismuth**, gives excellent results, combined with Opium or Morphine, sometimes with Magnesia (R). **Diet**. Use lemon-juice, aërated or old bread, plain biscuits. Avoid new bread, pastry, and vegetables.

Prescriptions.

℞. Bismuthi Subnitrat., . . ʒiij.
Acidi Carbolici, . . . gr. ij–v.
Mucil. Acaciæ, ... ℥j.
Aq. Menth. Pip., . . . ℥iij.
M. Sig.—A tablespoonful 3 or 4 times daily for adults.

℞. Sodii Bicarb., ... ʒij.
Spt. Ammoniæ Aromat., ℥ij.
Tinct. Zingiberis, . . . ʒj.
Infus. Gentianæ Co. (U. S. P., 1870), q.s. *ad*, . ℥viij.
M. Sig.—A tablespoonful or two.

Acne.

Alkalies, internally yield the best results in a number of cases (Bulkley); alkaline lotions for cases with seborrhœa (B). **Borax**, a weak solution in rose-water (ʒj–℥viij), of great benefit locally in acne simplex (Wa). **Potassium Bromide**, in moderate doses has proved curative in some obstinate cases (R). **Sulphur**, internally and as a lotion. In severe forms an ointment of the Iodide or Hypochlorite, ʒij ad ℥j (R). **Belladonna** locally, is of some service, checking the abundant secretion from the sebaceous follicles (R). **Arsenic**, in old cases, especially in acne indurata, but often disappoints; given with Bromides it prevents the bromic acne (R). Arsenic Bromide is adapted to most of the cases of acne vulgaris (Pf). **Phosphorus**, is an excellent substitute for arsenic (B); the compound syrup of the Hypophosphites in acne indurata (R). **Mercury**, in lotion is much employed (B); a weak lotion of the Bichloride to the face two or three times daily (R). The Iodo-chloride (gr. v–xv ad ℥) as irritant application (Fox); or ointments containing the Bichloride or Biniodide may be employed instead of the green soap application (Pf). **Glycerin**, internally, has been used with success (B). **Berberis**, ♏v of a fresh tincture thrice daily for the acne of girls at puberty. **Calcium Sulphide** is indicated in cases characterized by a tendency to pustulation (Pf). **Bismuth**, locally as a cosmetic (B). **Magnesium Sulphate**, as a purgative daily before breakfast, in cases of acne vulgaris depending on derangement of stomach and bowels (Duhring); the salt, finely triturated, is an excellent dusting-powder for cases of acne rosacea, and in five-grain doses internally, 3 or 4 times a day, is often very efficient in acne vulgaris and other obstinate eruptions due to derangement of the gastro-intestinal tract. **Resorcin**, as paste, 50 per cent., with Zinc Oxide, applied to the affected part several times a day, to promote peeling of the skin in the treatment of acne rosacea. In 3 or 4 days the skin becomes like parchment, when the application must be stopped to avoid cracking of the skin, and a dressing of gelatin, glycerin, zinc oxide and hot water is applied, covered with cotton wool. In a few days the dressing will come off, bringing the skin with it. Some few dangerous results have followed this practice, but there have been a number of very satisfactory cases (Unna). **Sapo Mollis**, as an active irritant in subacute cases, applied every night as long as bearable, then emollients until irritation subsides, when the soap should be removed (Pf). **Water,** hot sponging for 15 or 20 minutes several times a day, followed by Glycerite of Starch to allay irritation (R); the local use of very hot water is of the greatest benefit in all inflammatory forms of acne (Bulkley). **Puncturing** each papule with a lancet point, followed by very hot water, and ointments of Sulphur Iodide, Ammoniated Mercury, etc., diluted (Pf). **Ergot** is well used in acne rosacea and other forms of acne; a good fluid extract with glycerin and water, giving ʒss internally per diem (B). **Diet and Hygiene,** require careful attention (B); powerful tonics are often required (Bulkley). [Compare SEBORRHŒA.]

Prescriptions.

℞. Potassii Acetatis, ... ℥ss–j.
Tinct. Nucis Vomica, . . ʒij.
Ext. Rumicis Fluidi, . . ℥iv.
Misce. Sig.—A teaspoonful, largely diluted, half an hour before meals.

℞. Potassii Acetatis, ... ʒiv–℥j.
Tinct. Nucis Vom., . . . ʒij.
Infusi Quassiæ, *vel*
Tinct. Cinchonæ Co., . *ad* ℥iv.
M. Sig.—Teaspoonful in water after meals, as an antacid tonic.

℞. Potassii Acetatis, ... ℥j.
Spt. Etheris Nitrosi, . . . ℥jss.
Ac. Acetici Dil., ... ʒj.
Ext. Taraxaci Fl., ... ℥ij.
Misce. Sig.—A teaspoonful, well diluted, on an empty stomach.

℞. Magnesii Sulphatis, . . . ℥jss.
Ferri Sulphatis, ... gr. xvj.
Acidi Sulphurici, ... ʒij.
Aquæ, ... q. s. *ad* ℥viij.
M. Sig.—A tablespoonful in a glass of water before breakfast.

℞. Sulphuris, ... ʒj.
Glycerini, ... ℥j.
Aquæ Rosæ, ... ℥vij.
M. Sig.—Lotion.

℞. Hydrarg. Chlor. Corr., . . gr. x.
Alcoholis, q. s.
Aquæ Destil., ... ℥ij.
M. Fiat. sol. Sig.—A teaspoonful in ¼ pint of water as a lotion, twice daily.

℞. Liq. Potassæ, ... ʒj.
Aquæ Rosæ, ... *ad* ℥iv.
M. Sig.—Apply with a soft sponge twice daily.

℞. Bismuthi Subnit., ... ʒj.
Ung. Hydr. Ammoniat., . ʒij.
Ung. Aq. Rosæ, . . . *ad* ℥j.
M. et fiat unguentum.

℞. Hydrarg. Iodo-chlor., . . gr. v–xv.
Adipis, ... ℥j.
Fiat unguentum. An irritating application, requiring care.

Addison's Disease.

Arsenic, with cod-liver oil, gives the best results (Da C). **Iron,** and other tonics are useful, especially a combination of the chloride, glycerin and chloroform (Greenhow). **Phosphorus,** has seemed to exert a beneficial influence (Wilks). **Treatment** must be symptomatic, and is of little use, the disease being always fatal (H).

Prescriptions.

℞. Tinct. Ferri Chloridi, . . ℥j.
Spt. Chloroformi, ... ℥j.
Glycerini, ... ℥vj.
M. Sig.—A dessertspoonful in water thrice daily.

℞. Quininæ Sulph., ... ʒj.
Ferri Reducti, ... ʒjss.
Ac. Arsenosi,
Strych. Sulph., ... āā gr. iij.
Confect. Rosæ, ... q. s.
M. et. div. in pilulas lx.

Adynamia.

Cinchona or Quinine, with Arsenic, for pale, badly-fed town-dwellers (R); as a general tonic when flesh flabby, skin perspiring (P). **Arsenic,** for swelled feet of old or weakly persons, and breathlessness from weak heart (R); as tonic in continued doses of gr. $\frac{1}{60}$ to $\frac{1}{12}$ (Wa). **Nux Vomica,** in adynamia of drunkards. ℞. Tinct. Capsici ʒvj; Tinct. Nucis Vom. ʒij; gtt. xx in water every four hours (B). **Lime Salts**, the Phosphate, when from prolonged town-life or overwork; gr. j with grain j each of Iron Phosphate and Calcium Carbonate, for a dose (R); Hypophosphites, of Lime or Soda, in nervous or general debility (R). **Iron**, promotes appetite and digestion; gr. j–iij of the Sulphate, or the official Iron and Aloes pill, or with Manganese (B); anæmic subjects (R). **Hydrastine**, as substitute for Quinine, to promote appetite and digestion and improve assimilation (B). **Digitalis or Eucalyptus**, in debility with weak heart action (B). **Bitters**, especially Calumba and Gentian, useful for a short time (B). **Sanguinaria**, when stomach needs stimulation (P). **Sarsaparilla**, broken-down, syphilitic constitutions (P). **Alcohol** is of great value, but has been abused; hurtful when it increases temperature and pulse, dryness of tongue, etc. (B); a wine with much ether in debility of old age, especially where sleeplessness, indigestion and stomach cramps (R). **Aliment**, sugar and saccharine fruits, vegetables, oil, milk, cod-liver oil, wine of good body and strength (B). Porter or Rum-and-milk for town-living women (R). **Sea-bathing**, is useful in chronic illness, with much debility (R). **Turkish Baths**, when debility is caused by the tropics, but caution necessary. When town-dwellers become stout and flabby, are easily tired, suffer from a lack of energy and from mental depression, a course of baths is beneficial (R). [Compare ANÆMIA, CONVALESCENCE.]

Tonic Prescriptions.

℞. Quininæ Sulph., ... gr. xxx.
Ac. Sulphurici Dil., . . . q.s.
Tinct. Ferri Chlor., . . . ʒij.
Aquæ, ... *ad* ℥ij.
M. Sig.—A teaspoonful thrice daily.

℞. Tinct. Ferri Chlor., . . . ʒiv.
Ac. Phosphor. Dil., . . . ʒvj.
Sp. Limonis, ... ʒij.
Syrupi, ... q. s. *ad* ℥vj.
M. Sig—A dessertspoonful in water after each meal.

℞. Quininæ Sulph., ... ʒj.
Strychninæ Sulph., . . . gr. j.
Tr. Ferri Chloridi, ... ʒv.
Ac. Phosph. Dil., ... ℥ij.
Syr. Limonis, ... *ad* ℥vj.
M. Sig.—A teaspoonful in water thrice daily, in nervous debility.

℞. Ac. Arsenosi, ... gr. j.
Quininæ Sulph., ... gr. xl.
Ferri et Potass. Tart., . . gr. lxxx.
M. Fiant pil. no. xl.
Sig.—One after each meal.

After-pains.

Opium, more certain in action than any other remedy (Wa); Morphine and Atropine (gr. ¼ and gr. $\frac{1}{100}$), combined (B), hypodermically (Wa). **Belladonna**, as ointment, much used in France (L). **Camphor**, gr. x with gr. ⅛ of Morphine, an effective remedy (B); ℥j in ℥vj of mucilage, tablespoonful doses every hour or two (Wa). **Chloral**, will stop the pains, but large doses, gr. xx–xl, are necessary (R). **Chloroform**, the Linimentum Chloroformi, ℥j with Linim. Saponis ℥vj, applied on flannel to the abdomen (Barker). **Quinine**, gr. v–x night and morning, with the above chloroform liniment locally, in neuralgic after-pains which do not yield to opiates, the uterus being tender on pressure (Barker). **Gelsemium**, suspends them, large doses (♏xx) necessary (B). **Cimicifuga**, relieves the pains, and allays general nervous excitement (P). **Ergot**, is better than cimicifuga (R). **Poultices**, warm, over the hypogastrium, with soothing injections into the vagina (L).

Agalactia.

Ricinis Communis, gr. v of extract, or ʒj–ij of strong decoction, daily in water; also the leaves, or an infusion, locally to mammæ (T). **Gossypium**, an emulsion of the seeds has repute in India, as a galactagogue. A wineglass of the decoction every 20 or 30 minutes (P). **Pilocarpus**, remarkably increases the secretions (B). **Tea**, a good black tea promotes the milk-supply. [Compare LACTATION.]

Albuminuria.

Aconite, in incipient albuminuria with high body temperature (R). **Lead**, diminishes the albumen (R). **Turpentine**, gtt. ss–j, every 2 to 4 hours, or one to two drop doses night and morning, of great value in chronic albuminuria without marked symptoms of Bright's disease (P). **Gallic Acid**, the most efficient agent in the acute form to restrain loss of albumen (P). [See Aitken's formula below.] **Cannabis Indica** is indicated when bloody urine (R). **Chimaphila**, has unquestioned power over albuminuria (P). **Cantharis**, ♏j every three hours, of the tincture, after the subsidence of acute symptoms, especially when bloody urine (R). **Fuchsin**, in doses of gr. j–iij, completely arrested albuminuria in many cases with œdema (Bouchut). **Alkalies**, the citrates and acetates as diuretics (R); the Buffalo Lithia Water of Virginia is highly recommended. **Strontium Lactate**, has been used with benefit, but should not be given when scanty urine or symptoms of uræmia are present. **Nitro-glycerin**, ♏j of a one per cent. solution to dilate the peripheral vessels, relieving the heart and lessening the renal congestion (B). **Turkish Baths**, benefit by relieving the kidneys of work (R). **Milk-cure**, with buttermilk, has proved very efficient in many cases (B). **Chalybeate Waters**, especially those having purgative qualities, are beneficial (B). [Compare BRIGHT'S DISEASE.]

Prescriptions.

℞. Acidi Gallici, ... ʒj–ij.
Ac. Sulphurici Dil., . . ʒss.
Tinct. Lupuli, ... ʒj.
Infusi Lupuli, ... ad ℥vj.
M. Sig.—Tablesp. thrice daily.
(*Aitken.*)

℞. Liq. Ferri et Ammonii Acetatis (U. S. P.), ... ℥vj.
Sig.—Teasp. to a tablesp. according to age, well diluted, thrice daily.
(*Basham.*)

Alcoholism.

Arsenic, for distressing vomiting, one drop of Liquor Arsenicalis (Fowler's solution), before breakfast (R). **Capsicum**, in dyspepsia of chronic alcoholism, and to induce sleep; also as a substitute for the alcohol. With Bromides or Arsenic and bitters to assist in overcoming habit, by removing the distress at pit of the stomach. The tinct. in 10-minim doses should be taken shortly before meals, or whenever there is depression or craving for alcohol. It obviates the morning vomiting, and promotes appetite and digestion (R). **Ammonia**, a full dose (ʒss) of the spirit will often sober a drunkard speedily (R);—a few drops of Liquor Ammoniæ, diluted, have prompt action (S);—ʒj of the aromatic spirit with Capsicum (see formula below). **Ammonium Chloride**, is remarkably efficient in straightening up a subject of acute alcoholism: ʒss in ½ pint of water, swallowed at one draught, by a patient on the verge of delirium tremens, said to quickly restore the faculties. **Cinchona**, especially Cinchona Rubra, for gastric catarrh of drunkards (B); Quinine, gr. ij–vj daily to raise the nervous tone (P). **Nux Vomica**, for after stomachal disorders (B); in tremor of chronic alcoholism, of much value (P); the tinct. in 5-minim doses with 15 of Tinct. Capsici, in water every 4 hours, is exceedingly effective in diminishing the craving for spirits and sustaining the nervous system. **Strychnine**, the Nitrate, gr. $\frac{1}{30}$–$\frac{1}{15}$ hypodermically thrice daily for ten days, is an absolute cure for dipsomania (Luton); a very valuable remedy for chronic alcoholism and dipsomania, not merely curing the attacks, but abolishing the desire for drink, the patients abstaining from spirits of their own accord (Pombrak). [See *ante*, page 309, for extract from letter of Dr. Portugaloff, of Samara, Russia, regarding his use of strychnine in chronic alcoholism.] **Glycozone**, is one of the best remedies for the gastric catarrh of chronic alcoholism (Edson). **Potassium Bromide**, ʒj every 4–6 hours in the "horrors" (B). **Phosphorus**, in chronic alcoholism, recommended by Anstie (R). **Opium**, cautiously, if at all (B);—Morphine with tonics before meals for pain, nausea, and want of appetite (R). **Cocaine**, has been pronounced of great benefit, restoring appetite, inducing sleep and promoting digestion, while it soothes the brain and induces a feeling of contentment and calm (R). **Cimicifuga**, is said to be useful in the treatment of the drunkard's stomach (R). **Chloral**, is very successful, gr. xv–xx, but must be cautiously used with old worn-out drunkards (B). [See *ante*, page 182.] **Picrotoxin**, small doses for the tremor, gr. $\frac{1}{20}$ repeated (B). **Lupulin**, is the best substitute for alcoholic stimulants, and extremely serviceable in delirium tremens (B). **Zinc Oxide**, is very useful in chronic alcoholism, to diminish the craving, to relieve the gastric catarrh and lessen the tremor (B). **The Keeley Injection** contains Strychnine and Atropine, also Codeine and Cocaine for subjects of the opium-habit. (*N. Y. Med. Record.*) [See under PATENT MEDICINES.] **Acute Alcoholic Poisoning** requires an emetic or the stomach-pump, cold douche to the head and breast, warmth to the feet and limbs. Artificial respiration may be required. Milk, mucilaginous drinks, and black coffee, are the principal remedies. A milk diet often creates a disgust for alcohol. [Compare DELIRIUM TREMENS, VOMITING, and NEURITIS; also page 101, *ante*.]

Prescriptions.

℞. Tinct. Capsici, ... ℥ss.
Potass. Bromidi, ... ʒss.
Vel Liq. Potass. Arsenit., ♏l.
Vel Tinct. Nucis Vom., . ʒij.
Spt. Ammoniæ Aromat., ℥iij.
Syr. Tolutani . . . . ad ℥vj.
M. Fiat mistura. Sig.—A dessertspoonful in water four or five times daily.

℞. Tinct. Nucis Vom., . . . ʒj.
Tinct. Gentianæ Co., . . . ʒiij.
Spt. Limonis, ... ♏vj.
Spt. Chloroformi, ... ʒj.
Aquæ, ... q. s. *ad* ℥vj.
M. Sig.—One-sixth to be taken 3 or 4 times daily, for insomnia.

℞. Zinci Oxidi, ... ʒj.
Piperini, ... gr. xx.
M. Fiant pil. no. xx. Sig.—One pill thrice daily.

℞. Tinct. Gentianæ Co., . ℥ij.
Tinct. Calumbæ Co., . ℥ij.
Tinct. Nucis Vom., . . ♏lxxx.
M. Sig.—A dessertsp. before each meal, for rum-stomachs. (*Loomis.*)

℞. Ext. Lupulini Fl., ... ℥j.
Ext. Aromatici Fl., }
Tinct. Capsici, . . } . āā ʒvj.
Mucil. Acaciæ, . . }
Aquæ Menth. Viridis, . *ad* ℥iv.
Fiat emulsio. Sig.—A teaspoonful or two as required.

Alopecia.

Cantharides tincture, 1 part to 8 of castor oil, well rubbed into roots of hair, night and morning (Wa). **Arsenic**, ♏v of Liq. Arsenicalis ter die, exercises a more or less powerful influence (Wa). **Nitric Acid**, with olive oil, makes a serviceable liniment (Wa). **Pilocarpine**, has a decided influence on the growth of the hair (B). **Glycerin** in combination with the above remedies (Wa). **Sulphur Iodide**, has been found very effectual, used internally and externally (Wa). **Frequent Shaving** may often save the hair in alopecia after illness. Use clean brushes with long bristles, and brush against the natural lay of the hair. [Compare TINEA.]

Prescriptions.

℞. Ol. Amygdalæ Expres.,
Aq. Ammoniæ, ... āā ℥j.
Ol. Rosmarini, ... ʒij.
Alcoholis, ... ℥ij.
Aq. Destillat., ... ℥ij.
Mellis Despumat., . . *ad* ℥viij.
M. Sig.—Lotion for the hair. (*Wilson.*)

℞. Tinct. Macis, ... ʒjss.
Olei Olivæ, ... *ad* ℥ij.
M. Sig.—Lotion for baldness. (*Hebra.*)

℞. Tinct. Cantharidis, ... ʒjss.
Tinct. Capsici, ... ♏xx.
Glycerini, ... ℥ss.
Spt. Odorat., ... *ad* ℥vj.
M. Sig.—Hair tonic. (*Gross.*)

℞. Pilocarpin. Hydrochlorat., gr. j.
Aquæ Destillat., ... ℥j.
M. Sig.—Ten to thirty drops twice daily, according to age, to improve the growth of the hair. (*Bartholow.*)

Amaurosis and Amblyopia.

Arnica, has long been a popular remedy for amaurosis in Germany. Mannoir employed it with much success (P. Wa). **Rue,** in minim doses night and morning, for dimness of vision from functional amaurotic condition. Elgâjaki says it produces dimness of vision, and in smaller doses improves the eyesight (P). **Strychnine,** may cure functional amaurosis from lead, tobacco and alcohol (B): gr. $\frac{1}{40}$ hypodermically (Nagel); hypodermically in tobacco and traumatic amaurosis, and in progressive nerve atrophy not dependent on intercranial disease (R). **Guaiac,** is advised for cases of amaurosis occurring in persons of rheumatic diathesis (Wa). **Santonin,** has given very satisfactory results in amaurosis (Wa). **Veratrine,** as lotion brushed over eyelids, brows and temples once a day, is often useful, but should not be permitted to touch the conjunctiva, or great pain will result (Wa). [See formula below.] **Potassium Iodide,** in amblyopia from lead-poisoning (Wa). **Seton,** a small seton in the temple kept open for a long period, has been found effectual when other remedies failed (Wa). Amaurosis and Amblyopia are names formerly much used to denote the various conditions of blindness, before ocular diagnosis became as exact as it now is. Amblyopia is still used to designate certain impairments of vision not accounted for by any organic changes visible (*Roosa*).

Prescriptions.

℞. Veratrinæ, ... gr. x.
Ætheris, ... ℥ij.
Alcoholis, ... ʒj.

M. Sig.—Use with a brush once a day over eyelids, eyebrows and temples.

℞. Strychninæ Sulphatis, . . gr. j
Alcoholis, ... ℥j.
Aquæ Destillatæ, . . . *ad* ℥iv.

M. Fiat solutio. Sig.—A teaspoonful thrice daily before meals, when not used hypodermically.

Amenorrhœa.

Aconite, sudden suppression from cold or wet feet (R. P). **Pulsatilla,** in sudden suppression (B); often of the greatest value in functional form (P). **Iron,** when from anæmia, the most frequent cause; small doses preferred. Solution of Acetate, or Ferri et Ammonii Citras (gr. ij), or Ferri et Strychninæ Citras (gr. j), also chalybeate waters. Caution, careful diagnosis before giving iron (B). **Aloes,** when dependent on anæmia (B); at the periods, with hot pediluvia, friction, etc. (R. P). **Potassium Permanganate,** gr. j thrice daily increased to gr. ij is the best of all remedies for bringing back the menses, having specific action on the uterine tissue (R); excellent in amenorrhœa from cold feet, and is by far the best emmenagogue, in pill it may explode; best in capsule with powdered elm or licorice (Parvin). **Manganese Binoxide,** in pill, gr. ij thrice daily, is a very efficient emmenagogue. **Mercury,** the Biniodide is a certain and safe emmenagogue, gr. ⅛ in pill, four times daily. **Oxalic Acid,** is highly praised, gr. ½–¾ in mixture, every hour (Poulet). **Apiol,** when from functional inactivity. First give Iron for the blood; next aloëtic purgatives, then apiol (gr. xv) just preceding the period; or a daily dose for a week, or several days before (B); the best emmenagogue next to Potass. Permang. (Parvin). **Senega,** a saturated decoction of the root, to extent of a pint in 24 hours, during preceding two weeks, advantageous (P). **Polygonum,** has given excellent results when used in ʒss doses four times daily for a week (B). **Cimicifuga,** has been recommended (R); is of very great value (P). **Arsenic,** combined with Iron, when from functional inactivity of ovaries (B). **Aurum Salts,** from torpor of ovaries (B). **Ignatia,** in suppression of hysteria (P). **Cinnamon,** causes a flow of blood to the womb (Goodell). **Indigo,** is considered very efficient, in doses of from ʒj to ʒiv. Larger doses produce nausea and vomiting. **Nux Vomica,** small doses of the extract, of benefit in some obstinate cases (Wa). **Silver Nitrate,** in substance lightly to the os uteri, at time of expected discharge (Wa). **Colocynth,** in chlorotic amenorrhœa (P).

Ergot, has cured when due to plethora (B); when anæmia after use of iron (R); in chlorotic (P); ♏j every ½ hour for 5 or 6 hours the day before and that of the expected flow, is very efficient when the cessation is not due to anæmia (A. A. Smith). **Senecio Aureus**, seems to have a well-founded reputation. **Rue**, in functional inactivity. Ol. rutæ, ♏j–v (B. P). **Sanguinaria**, functional amenorrhœa, in absence of plethora (B. P). **Savine**, general atony: ♏v–x of the fluid extract (B. R. P). **Serpentaria**, with anæmia or chlorosis (B). **Ammonium Chloride**, for headache (R). **Sitz-baths**, hot, for six days before period; mustard may be added at period; often effectual in sudden suppression (B). **Spinal-ice-bag**, to lower dorsal and lumbar vertebræ; or cold sponging useful (R). **Electricity**, in atony of uterus and ovaries (B). [Compare ANÆMIA, CHLOROSIS.]

Prescriptions.

℞. Olei Sabinæ, ... ʒj.
Olei Rutæ, ... ℥j.
Tinct. Polygon. Hydropip., ʒj.
Ol. Amygdalæ Expres.,
Mucil. Acaciæ,
Aquæ Menthæ Pip., . . āā ʒij.

Fiat mistura. Sig.—A teaspoonful two or three times daily. (*Bartholow.*)

℞. Ext. Aloës, ... ʒj.
Ferri Sulph. Exsic., . . . ʒij.
Asafœtidæ, ... ʒiv.

Fiant pilulæ 100. Sig.—One pill after each meal, gradually increased to three. (*Goodell.*)

℞. Tinct. Ferri Chloridi, . . ʒiij.
Tinct. Cantharidis, . . . ℥j.
Tinct. Guaiaci Ammon., . ℥iss.
Tinct. Aloës, ... ℥ss.
Syrupi, ... q. s. *ad* ℥vj.

Fiat mistura. Sig.—A tablespoonful thrice daily, in simple atonic amenorrhœa. (*H. C. Wood. Dewees.*)

℞. Quininæ Sulphat., ... ʒiss.
Extr. Nucis Vom., ... gr. xij.
Olei Sabinæ, ... ʒss.
Aloes Socotrin, ... gr. viij.
Cantharidis, ... gr. xxiv.

Fiant pilulæ xlviij. Sig.—One pill thrice daily.

Anæmia.

Nux Vomica, stimulates blood-making organs, and is used as an adjunct to restorative remedies (B). **Iron**, its chief value is to improve digestion; also furnishes hæmatin to the blood. The most astringent preparation is the best, and should be used after meals. Also chalybeate waters (B). Some stomachs, with irritable mucous membrane, require bland preparations. A pale, flabby tongue indicates large doses of the perchloride or sulphate (R). **Arsenic**, as adjunct to Iron, and where iron cannot be borne, or fails (B). **Quinine**, for badly-fed town dwellers (R). **Hypophosphites**, are useful, but should not be given with iron, cod-liver oil, or stimulants (R). **Calcium Phosphate**, in anæmia of growing persons, and of women weakened by rapid child-bearing or excessive menstruation (R). **Calcium Lacto-phosphate**, for nursing mothers, or in waste from suppuration (B). **Acids**, added to purgative salts as tonics to the mucous membrane (R). **Pepsin**, is recommended by Hollmann. **Manganese**, alone not of much use; is best combined with iron (B); is not, like iron, found in the fæces, nor does it cause constipation (Wa). **Galvanization**, as aid to remedies (B). **Cold Sponging**, needs great caution, or may lower tone by minute degrees (R). **Diet and Hygiene**, of prime importance. Nourishing, digestible food, in as large quantities as can be assimilated—milk, eggs, animal broths; afterwards, fish, poultry, game, mutton, etc. Moderate daily out-of-door exercise, in pure air, is indispensable. Bathing, especially sea-bathing, aids restoration. Wines, often useful. Red wines are the best.

Tonic Prescriptions.

℞. Pil. Ferri. Carb. (U. S.). . xlviij.
Sig.—One to three after meals.

℞. Pil. Ferri Iodidi (U. S.), . xlviij.
Sig.—One to three after meals.

℞. Massæ Ferri Carbonat., . ʒj.
Acidi Arsenosi, ... gr. j.
Quininæ Sulphatis, . . . gr. xl

Fiat massa, et. div. in pilulas xl.
Sig.—One or two thrice daily.

℞. Tinct. Ferri Chloridi, . . ʒ iv.
Ac. Phosphorici Dil., . . ʒ vj.
Spt. Limonis, ... ʒ ij.
Syrupi, ... q. s. *ad* ℥ vj.

Misce. Sig.—A dessertspoonful in water after meals. To the above may be added ʒ ij of the Liquor Strychninæ Hydrochloratis of the B. P. (*Goodell.*)

℞. Hydrarg. Chlor. Corr., . . gr. j–ij.
Liq. Acidi Arsenosi, . . . ʒ j.
Tinct. Ferri Chlor., . . .
Ac. Hydrochlor. Dil., . āā ʒ iv.
Syrupi, ... ℥ iij.
Aquæ, ... q. s. *ad* ℥ vj.

Misce. Sig.—A dessertspoonful in a wineglassful of water after each meal, as an alterative tonic. (*A. H. Smith.*)

℞. Acidi Arsenosi, ... gr. j.
Quininæ Sulphat., ... ʒ j.
Ferri et Potass. Tart., . . ʒ ij.

M. Ft. pil. no. xxx. Sig.—One pill after each meal.

℞. Tinct. Ferri Chloridi, . . ʒ iij.
Potassii Chloratis, ... ʒ j.
Liq. Strychninæ (B. P.), . ʒ j.
Syr. Simplicis, ... ℥ iv.
Aquæ Cinnamomi, . . *ad* ℥ iv.

Misce. Sig.—One or two teaspoonfuls after each meal.

℞. Quininæ Sulphatis, . . . gr. xx.
Ferri Sulph. Exsic., . . . gr. xl.
Strychninæ Sulph., . . gr. ss.

Fiant pilulæ xx. Sig.—One pill thrice daily. (*Bartholow.*)

℞. Tinct. Nucis Vom., . . . ʒ ijss.
Tinct. Cinchonæ, . . . *ad* ℥ iv.

M. Sig.—A teaspoonful after each meal.

℞. Ferri Sulph. Exsiccat.,
Potass. Carbonatis, . āā . ʒ ij.
Syrupi, ... q. s.

Fiant pilulæ no. xlviij. Sig.—One pill after each meal, gradually increased to three. (*Blaud.*)

Anæsthesia.

Morphine, subcutaneously before inhalation, diminishes the danger, and lessens the after-pain if an operation is to be performed (Nussbaum); Morphine gr. 1/12 and Atropine gr. 1/125, hypodermically, after emergence from anæsthesia, will relieve the nausea and vomiting. A preliminary injection of Morphine lessens the stage of rigidity and spasm, enables a smaller quantity of the anæsthetic to be used with full effect, prolongs the stage of insensibility, prevents shock, and antagonizes the cardiac and respiratory depression (B). **Atropine,** is decidedly the best antagonist to the respiratory paralysis of Ether, and should be given hypodermically (gr. 1/80) as soon as alarming symptoms manifest themselves (Amidon). The writer of this book has saved at least four subjects of chloroform-narcosis by the hypodermic use of Atropine after both heart and respiration had apparently failed. **Alcohol,** ℥j–ij of whiskey or brandy, before inhalation, to sustain the heart and prolong narcosis (B). [Compare pages 88 and 187 for the general subject of ANÆSTHESIA, and page 25 for a list of LOCAL ANÆSTHETICS. See also the article COCA, page 203, for the use of Cocaine as a local anæsthetic.]

Aneurism.

Potassium Iodide, in large doses (gr. xv–ʒss), 3 or 4 times a day, gives great relief and has cured (B); combined with recumbent position and restricted diet (R). **Veratrum Viride,** aids surgical expedients; also in large internal aneurisms, with absolute recumbence and a little Opium to relieve pain, vomiting to be avoided (B). **Ergot,** with recumbent position; favors coagulation of the blood in sac (B); Ergotin (P). **Gallic Acid and Iron,** internally, have cured cases of aortic aneurism (Speer). **Chloroform** inhalation, great dyspnœa (R). **Lead Acetate,** a valuable auxiliary to the more important items of rest, diet and mechanical appliances, gr. iij–v ter die (Wa); its use limited to the sacculated form (S). **Electrolysis,** galvano-puncture in deep aneurisms; not very successful (B). The object sought is the coagulation of blood within the aneurismal sac. Cures have not been attained by this treatment, but in many it has produced great amelioration of the most distressing symptoms (Petit). **Aliment**

milk regimen, for denutrition (B); a low diet, with absolute rest; Ergotin and Potassium Iodide for deep aneurisms beyond reach of surgical treatment (B). **Rest**, in recumbent posture, and light, unstimulating diet, are primary and essential elements in treatment of aneurisms. **Surgical Treatment** includes ligation of the vessels, also pressure by a tourniquet or bags of shot, the operator's fingers, etc., applied to the main artery above the tumor, and the introduction of fine wire into the sac to favor coagulation.

Prescriptions.

℞.	Potassii Iodidi, ...	℥j.
	Tinct. Veratri Viridis, . .	ʒjss.
	Tr. Cinchonæ Co., . . .	℥j.
	Tr. Cardamomi Co., . . .	℥jss.
	Tr. Gentianæ Co., ...	ʒss.
	Syrupi Simplicis,	
	Alcoholis, ...	āā ℥iv.
	Aquæ, ...	q.s. *ad* ℥xvj.

Misce. Sig.—ʒss thrice daily. Each dose has gr. xv of Pot. Iod.

℞.	Acidi Gallici, ...	ʒj.
	Ext. Ergotæ, ...	gr. xx.
	Digitalis, ...	gr. xx;

Fiat. massa, et div. in pil. xx.
Sig.—One every two hours.

℞.	Plumbi Acetatis, ...	gr. xxxvj.
	Extracti Opii, ...	gr. iv.
	Confectionis Rosæ, . . .	q. s.

Ft. pil. xij. One every four hours.

Angina Pectoris.

Aconite, believed by Gubler to be appropriate, and by Fleming to have been curative in many severe cases resisting other remedies (P). In cardiac disease its action is uncertain (Br). **Arsenic**, lessens or prevents paroxysms, if used in the intervals (B. R. Anstie). **Amyl Nitrite**, as inhalation, affords signal relief (R); unsafe in advanced degeneration of cerebral vessels and fatty degeneration of heart (B); gives great relief during paroxysms (Br). **Sodium Nitrite**, is less rapid in action than Amyl Nitrite, but is more efficient in preventing return of symptoms (Br). **Laurocerasus**, as anodyne (P). **Strychnine**, in the milder forms; very small doses, gr. $\frac{1}{100}$ to $\frac{1}{32}$ (P). **Glonoinum**, doses of ♏$\frac{1}{100}$ have been used with success (Pf. R). **Chamomile**, in pseudo-spasms of hysterical persons (P). **Ether**, aborts a mild attack (B); Sulphuric Ether, in nervous form; a spoonful immediately on commencement of attack will greatly mitigate it (Anstie). **Phosphorus**, often serviceable (R). **Morphine**, hypodermically, especially in cardiac dyspnœa; strengthens the heart (R). **Turpentine**, applications, hot, over chest, to mitigate severity of the paroxysms, especially in the aged (Wa). **Quinine**, when intermittent (Wa) or when any malarial taint (Br). **Brandy**, in frequent small doses, with hot bran poultice over heart, and warmth to extrémities. **Cocaine**, in doses of gr. $\frac{1}{3}$ to $\frac{1}{2}$ thrice daily for two days, proved curative in four very severe cases (Laskevitch).

Antrum, Disease of.

Hydrogen Dioxide, the solution 1, to 12 of water, injected through the ostium for diagnosis of empyema of the antrum. If pus be present it is driven out, and fills the nose as a white foam (Brown). **Chloroform**, by inhalation, small quantities frequently, for treatment of acute catarrh extending to the antrum, extremely efficient, both as a remedy therefor and as a preventive of suppuration therein (Potter). **Operative Measures.** That in most favor is to enter the antrum through the alveolus of the second molar tooth (Garretson); to give free drainage and enable medication of the diseased mucous membrane, best to enter the antrum in its most dependent portion, through the upper part of the alveolus or immediately above it, between the roots of the 2d bicuspid and 1st molar. A gold tube then fitted to the opening, so as to project beyond the mucous membrane, will give free drainage, without sacrificing a sound or even diseased tooth (Brown). **Boric Acid**, in saturated solution, as wash to cavity twice a day, the after treatment; and occasionally injecting Iodine, Zinc Sulphate, or Bismuth Subnitrate (Idem).

Anus, Fissured.

Hydrastis, locally, promotes healing (B). **Rhatany,** as injection, night and morning, after enema in the morning to move the bowels (Pf. Tr). **Iodoform,** improves and relieves pain (B). **Iodo-tannin,** well applied, effective (B). **Belladonna,** locally of great service for painful spasms of sphincter (P). **Opium,** with gall-ointment for fissures of anus; mild purgatives should be simultaneously employed (R). **Sulphur,** as a mild purgative, to cause soft motions (R). **Tannin,** ʒj in Glycerin ℥ij, introduced on a tent, night and morning, with great advantage (Wa). **Collodion,** as protective covering (P). **Potassium Bromide,** with 5 parts of Glycerin, as local application (R). **Castor Oil,** as a mild purgative (R); to keep motions soft (Br). **Surgical Means,** the most efficient; forcible dilatation of sphincter, or partial division in severe cases, through the mucous membrane, and a few fibres of sphincter.

Prescriptions.

℞. Tinct. Krameriæ, ... ʒj.
Ext. Krameriæ, ... ʒij.
Aquæ, ... ad ℥viij.
M. Sig.—One-fourth as injection, night and morning, after using enema.

℞. Sulphuris, ... ℥j.
Pulveris Aromat.,
Confec. Rosæ, ... āā ℥ij.
Misce. Sig.—One-third to be taken at bedtime as a laxative.

Aphonia.

Ignatia, in that of hysterical women (P). **Atropine,** in hysterical aphonia, and for fatigue of vocal cords, gr. $\frac{1}{120}$ to $\frac{1}{80}$, morning and evening (B). **Nitric Acid,** ♏v–x of the dilute acid, for hoarseness of singers, in fatigue of vocal cords, and when stomachal (B). **Benzoin,** the tincture by inhalation in laryngeal catarrh (Br). **Oil of Rue,** as inhalation in chronic catarrh (Br). **Uranium Nitrate,** as spray in very chronic catarrh (Br). **Alum,** gr. x–℥j aquæ, as spray, in chronic coughs and hoarseness (R). **Borax,** a piece the size of a pea allowed to dissolve in the mouth (R). **Glycerite of Tannin,** locally in chronic inflammation of the throat (R). **Sulphurous Acid,** by inhalation, spray, or fumigation, in clergyman's aphonia (R). **Ipecacuanha,** wine, as spray, when congestion of vocal cords (R); in laryngeal catarrh (Br). **Ammonium Chloride,** vapor inhaled, of great value in catarrhal aphonia (Wa). **Turkish Bath,** at commencement of a feverish cold (R); in acute laryngeal catarrh (Br). **Galvanism,** localized, the best means for hysterical aphonia.

Prescriptions.

℞. Liq. Ammoniæ,
Aquæ, ... āā ℥j.
M. Sig.—A teaspoonful in a pint of hot water for each inhalation.

℞. Acidi Nitrici Dil., ... ʒij.
Tinct. Calumbæ, ... ℥j.
Aquæ, ... *ad* ℥iv.
M. Sig.—A dessertsp. in a winegl. of water thrice daily.

Aphthæ.

Potassium Chlorate, the best remedy; a solution of gr. x to the ℥, as wash, alone or with Borax (Br); and gr. x to xx by the stomach (B). **Borax,** with honey, or as glycerite of borax, frequently used (R); crystals allowed to dissolve in the mouth (W). **Sulphurous Acid,** as solution, strong or diluted, locally (R), dilute as spray (B). **Mineral Acids,** formerly much used (B). **Mercury,** Hydr. cum Creta in small doses to remove the indigestion on which aphthæ often depends (B); Borax being used locally, when aphthæ exist in the mouth (Wa). **Copper Sulphate,** a weak solution painted over mucous membrane (R). **Potassium Iodide,** gr. j–v–℥j aquæ, locally (B). **Salicylic Acid,** one part (dissolved in alcohol) to 250 of water (R). **Quinine,** gr. j every

2 or 3 hours, in infants (B), especially when consequent on diarrhœa (Br). **Coptis**, the infusion has repute in New England (B). **Bismuth**, freely to parts (B); as a local application (Br). **Glycerin**, will sometimes cure (R). **Rhubarb**, the compound powder to remove indigestion (Br);—is highly useful in small doses (Wa).

Prescriptions.

℞. Ac. Sulphurosi, ... ʒij.
Aquæ, ... *ad* ℥ij.
M. Sig.—Mouth-wash, or use as a spray.

℞. Pulv. Rhei Co., ... ʒij.
Sacch. Lactis, ... q. s.
Triturat. et div. in pulv. xij. Sig.—One thrice daily.

Apoplexy.

Aconite, when full strong pulse, hot, dry skin, plethoric cases. The best remedy (P); to lower blood-pressure and prevent further hemorrhage, where the pulse is strong and arterial tension high (Br). **Elaterium**, as a purgative; a large dose (gr. ij) in suppository with soap; or as an injection into large bowel (P). **Croton Oil**, as purgative, a drop may be put on the back of the tongue (Br); ♏¼ or ⅓ each hour (R). **Colocynth**, as a derivative purgative (Br); appears to act well (P). **Cold Water**, often harmful, though frequently used. Injurious when face pale, surface cool, circulation depressed (B). **Electricity.** Very mild galvanic currents to promote absorption. Caution necessary, especially if much headache and vertigo (B). **Diet and Hygiene**, of great importance in patients subject to apoplexy. Avoid stimulating food and drink (especially beer), over-eating, excitement, haste, exposure to hot sun, heated rooms, etc. At no subsequent period should a full animal diet or the use of undiluted wines be indulged in (A). **Diagnosis.** Should be carefully differentiated from alcoholism, with which it is often confounded. [Compare CEREBRAL CONGESTION, also page 100, *ante.*]

Prescriptions.

℞. Tinct. Aconiti, ... ♏x.
Aquæ Cinnamomi, . . *ad* ℥ij.
M. Sig.—A teasp. every ¼ hour for 2 hours, then every half-hour.

℞. Ext. Colocynthidis Co., . . gr. xx.
Olei Tiglii, ... ♏ij.
Fiat massa, et div. in pil. iv.
Sig.—One pill as required, until free purgation ensues.

Appetite.

Ignatia, will correct diseased appetite (P); especially in hysterical subjects (Br). **Anthemis**, will stimulate the appetite. **Cannabis Indica**, produces a ravenous appetite. **Bitters**, to stimulate the appetite (R). **Food** should be savory and well cooked. **Habits** require examining into, when lost appetite complained of. **Fluoride** of Sodium or Potassium will produce almost total anorexia, and may be employed with advantage in bulimia (Da C). [Compare DYSPEPSIA.]

Prescriptions.

℞. Gentianæ, Quassiæ,
Cinnamomi, ... aa ʒij.
Sig.—Put into a pint of boiling water, and when cold, strain; take a winegl. thrice daily as an appetizer.

℞. Anthemidis,
Quassiæ, ... aa ʒj.
Sig.—Put in a pint of boiling water, and when cold, strain; take a winegl. thrice daily before meals as an appetizer.

Arthritis, Rheumatoid.

Aconite, highly spoken of; as liniment, conjoined with internal use (Wa). **Cimicifuga**, when joints enlarged and much stiffened, and when traceable to uterine derangement, is very useful (R); when pains worse at night (Wa).

Viburnum Prunifolium, the fl. ext. with that of Cimicifuga, 20 drops of each thrice daily, gradually increased to 30, produced steady improvement in a well-marked case of eight years' standing, involving nearly all the articulations. **Iodine**, tinct. internally, said to be better than potassium iodide (R). **Iodoform**, 10 parts to 20 of Ether and 20 of Alcohol, as liniment to the joint, applied by a pencil, and covered with oiled silk (Gubler). **Iodides**, often signally benefit, especially when due to syphilitic, mercurial, or mineral poisoning (B). Large doses of Potassium Iodide sometimes required (R); combined with Guaiac, or Corrosive Sublimate, often curative in cases resisting these remedies given separately (Wa); Potassium Iodide should always be fairly tried (Da C). **Guaiac**, the ammoniated tincture, in doses of ʒj–ij in milk, often gives excellent results (Da C). **Colchicum**, with alkalies, extremely useful (B). [See GOUT, for formulæ.] **Arsenic**, when referable to nervous affections (B); as a bath containing ℥iv washing soda and gr. xx. of Sodium Arsenate;—in large doses, continued for some time, sometimes of great benefit, but action is capricious (R); in small doses is of great benefit (Da C). **Aurum.** The Bromide of Gold and Arsenic has proved curative in arthritis deformans, characterized by great pain, stiffness and swelling of the joints (E. A. Wood). **Lithium Salicylate**, very efficient in acute and progressive subacute articular rheumatism, and has some effect also in chronic cases, where some of the joints are deformed, swollen and painful; ʒj may be given daily, in doses of gr. vij to x, in water (Vulpian). **Lithium Bromide**, of great value in acute and chronic (B). **Phenocoll** with Piperazin, 15 grains of each daily, in a pint or more of carbonated water, has rendered good service in gouty and rheumatic affections. **Piperazin**, should be used in all cases of difficult diagnostic differentiation, from its remarkable power over uric acid and urate concretions. **Potassium Bromide**, sometimes allays the severe pain (R). **Arnica**, the tincture and infusion are said to be of great value (P). **Cod-liver Oil**, internally and locally, of much value (R). **Baths**, Turkish or sulphur. The cold douche, which may be slightly warmed in winter; use for one or two minutes and rub dry (R). **Adhesions** may be broken up under anæsthetics (Da C). **Massage** may be used with benefit to ameliorate the condition in chronic cases, where a cure cannot be obtained (Da C).

Prescriptions.

℞. Vini Colchici Sem., . . . ʒiij.
Spt. Ammon. Aromat., . . ʒxiij.
M. Sig.—A teasp. every 3 hours, until some physiological effect is produced. (B.)

℞. Lithii Bromidi, ... ʒiij.
Syr. Zingiberis, ... ℥ss.
Aquæ, ... ℥jss.
M. Sig.—A teasp. thrice daily, conjointly with a lotion of the same. (B.)

Ascites.

Digitalis, when ascites is part of a general dropsy due to cardiac or renal disease; is of the greatest service, except where there is aortic regurgitation and cardiac hypertrophy (P); a fresh infusion the best preparation (R); its action increased by combination with Squill and Mercury (Br). [See formula below.] **Jalap**, the most generally approved hydragogue purgative is the compound powder, with Podophyllum (B); with Potassium Bitartrate, combined in form of electuary, may be persevered with daily, though apt in some cases to cause gastric derangement (Saundby). **Stillingia**, in ascites due to hepatic changes (B). **Elaterium**, as hydragogue cathartic, gr. 1/6, with a grain of Ext. Hyoscyami, and a drop of some aromatic oil, is the most efficient of its class in ascites, but its action is very exhausting (W); cautiously in debilitated subjects, and is contraindicated where gastro-intestinal irritation or inflammation is present (B). **Arsenic**, when ascites is due to feeble heart, and in that of old age (B); did excellent service after tapping in a woman aged 82, from whom the writer removed 6½ gallons of ascitic fluid at one tapping, when almost moribund, with the result that she lived ten years longer. **Diuretin**, is often of very marked benefit, especially in cases of cardiac and renal origin. [See under DROPSY.]

Diuretics are of little use when the accumulation is excessive; the venous pressure seems to be too great for them to act (Saundby). **Copaiba,** is an excellent remedy in hepatic dropsy (Br); the resin in doses of 10 to 15 grains is often serviceable in cases of moderate effusion (Saundby). **Milk-diet** is an ancient remedy for ascites, and often successful, causing profuse alvine and urinary discharges (B); is sometimes very serviceable when the renal action is inadequate (Br). **Surgical.** Paracentesis abdominis should be done in all cases where excessive effusion. Laparotomy, and washing out of the peritoneal cavity, in cases of tubercular peritonitis with effusion, which has recently been treated successfully thereby (Saundby). [Compare DROPSY.]

Prescriptions.

℞. Potassii Bitart., ... ℥ss.
Mellis, ... ℥j.
Sig.—A teasp. every 2 hours until bowels are freely moved.

℞. Resinæ Copaibæ, ... ʒiij.
Alcoholis, ... ʒv.
Spt. Chloroformi, ... ʒj.
Mucil. Acaciæ, ... ℥ij.
Aquæ, ... q. s. *ad* ℥xij.
M. Sig.—A tablesp. thrice daily.

℞. Potassii Bitart., ... ℥ss.
Pulv. Jalapæ, ... ʒjss.
Mellis, ... ℥j.
Sig.—A teasp. every 2 hours, until bowels are freely moved.

℞. Hydrarg. Chlor. Mitis,
Pulv. Digitalis,
Pulv. Scillæ, ... āā gr. vj.
Fiat massa, et div. in pil. vj.
Sig.—One pill thrice daily, in ascites from hepatic changes.

Asphyxia and Apnœa.

Of the New-Born.—Clean the mucus out of nostrils and throat; catheterize the trachea, and suck up the mucus. Marshall Hall's method,—by placing child on abdomen, then bringing into lateral posture, repeating slowly and deliberately. Schultze's method,—by placing the thumbs upon the anterior surface of thorax, the indices in the axillæ, and the other fingers along the back, the face of the child being from you; rotate the child, by swinging upward, so that the inferior extremities turn over toward you. In a moment re-rotate to the original position. Do not support head or legs in the forward rotation; their bending upon or toward the abdomen gives a forced expiration.

From Foreign Bodies in Air Passages.—If the foreign bodies are round and smooth, invert the patient head downwards and strike upon the back. The bristle-probang is a good instrument for the removal of fish-bones, coins, etc., from the gullet; or a pair of curved forceps will often render good service. The writer removed a gold plate with three teeth attached, from the œsophagus of an insane woman, by passing down a curved piece of stout wire, having the end bent upon itself to form a hook. After the hook was passed to one side of and below the obstruction, the wire was half rotated, so as to engage the plate, which came up on the second trial of the improvised instrument. Tracheotomy or Laryngotomy may be necessary, as a final resort.

From Drowning.—Remove the person from the water as rapidly and gently as possible, turn the face downwards for a moment, and depress the tongue, in order that water, mucus, etc., may be removed from immediately over the entrance of the windpipe. Give the patient plenty of fresh air, fully exposing neck and chest to the breeze, unless that be inclement. Turn gently on the face, one forearm being under the forehead, and raise the body up that the water may have free discharge from the mouth. Place the patient upon the side and apply stimulants (Ammonia, etc.) *near* to the nostrils; or the cold douche to the face and chest, in order to excite respiration.

The above measures being ineffectual, convey the body to the nearest convenient spot, strip it carefully and dry it, and place it on a warm bed, with head and shoulders slightly raised, and at once employ one of the following methods.

Silvester's Method.—Pull the tongue forward, to prevent obstruction to entrance of air into the windpipe; produce expansion of the chest by drawing the arms from the sides of the body and upwards until they almost meet over the head. Then bring the arms down to the sides again, causing the elbows almost to meet over the pit of the stomach, and thus producing contraction of the chest. This imitation of the act of respiration should be continued at the rate of fifteen or sixteen times a minute, as in health.

Marshall Hall's Method.—The person should be placed flat on the face, gentle intermittent pressure being made with the hands on the back, the body turned on the side, or a little beyond, then on the face, and the same pressure, etc., continued as at first. The whole body must be worked simultaneously. The same number and frequency of these artificial processes of respiration should be employed as in the other method.

The Michigan Method.—Lay the body face down, the head upon the arm, and stand astride it; grasp it then about the shoulders and armpits, and raise the chest as high as you can without lifting the head quite off the arm, and hold it about three seconds; then replace the body upon the ground, and press the lower limbs downward and upward, with slowly-increasing force, for ten seconds; then suddenly let go, to perform the lifting process again.

Whichever process be employed, the effort to restore the temperature of the body must be maintained, the body being well rubbed in an upward direction with the hands, with warm flannels, etc.; bottles of hot water, hot bricks, etc., being applied to the stomach, the axillæ, the soles of the feet, etc., stimulants and beef tea being judiciously administered when restoration is about taking place. The attempts at resuscitation must be persevered in for several hours, if necessary.

Laryngotomy or Tracheotomy, with or without catheterization, or forced insufflations of air or oxygen, have proved successful, as also electro-puncture (Garratt).

In artificial inflation, always press the larynx and trachea against the vertebral column, so as to close the œsophagus and thus prevent the air entering the stomach.

After Long Submersion is Recovery Possible?—According to Harley, dogs kept under water 1½ minutes always died, if water had entered the lungs. If it had not, the trachea being plugged, they survived a submersion of 4 minutes. When persons rise after sinking they usually get some air, and less speedily come into a state from which recovery is impossible. The greatest period between the last inspiration and the stoppage of the heart is 4 minutes. Some think that no recovery has been made after complete cessation of the heart's action. We infer that after complete submersion for 5 minutes recovery is improbable, unless the person had been previously choked, or in a fainting state, so that no water entered the lungs. But in Anderson's case, the patient had been under water at least 15 minutes, and in Garratt's the time was variously estimated at from 15 to 60 minutes.

When is a Case Hopeless?—Harley says, "If the eyes are open, the pupils dilated, the conjunctiva insensible, the countenance placid, the skin cold, frothy mucus round the nostrils and mouth, no attempt at respiration, and the heart's action inaudible (when the ear is applied to the chest), the case is hopeless."

Signs of Death.—The following have been suggested as methods of deciding whether death has occurred:—

Tie a string firmly about the finger. If the end of the finger becomes swollen and red, life is not extinct.

Insert a bright steel needle into the flesh. If it tarnishes by oxidation in the course of half an hour, life may be considered not extinct.

Inject a few drops of Liquor Ammoniæ under the skin. During life a deep red or purple spot is formed.

Moisten the eye with Atropine. During life the pupil will dilate.

Look at a bright light or at the sun, through the fingers held closely side by side. During life the color is pink; after death a dead white.

After death a dark spot is said to form gradually on the outer side of the white of the eye, from drying of the sclerotic, so that the dark choroid shows through.

Putrefaction is an absolute sign of death. Better delay for it than run any risk of burying alive.

Asthenopia.

The proper glasses; cold douche; rest of eyes. **Atropine,** systematically instilled, to prevent strain, and control spasm of the accommodation (C). [Compare MYOPIA.]

Asthma.

Nux Vomica, in nervous subjects (B); often of great benefit in spasmodic asthma (P); the tincture, in one-drop doses every five minutes has rendered extraordinary results in both cardiac and bronchial asthma, and in asthma of peripheral reflex origin, as from phimosis (Macfarlan). **Antipyrin,** is successfully employed in bronchial asthma. **Aconite,** in spasmodic (P); often averts the attack, if given at commencement; useful also in the asthma following coryza and sneezing in children (R). **Ipecacuanha,** the wine as spray to the fauces, sometimes useful in severe bronchial asthma, but not of much service in genuine asthma (R); nauseant and emetic doses in the spasmodic form (B). **Lobelia,** gtt. x of the tincture every $\frac{1}{4}$ hour during paroxysm; ♏x ter die, with additional doses at night, in bronchitic asthma when worse at night,—cautiously if heart disease (R); often gives permanent relief (B). **Arsenic,** as cigarettes, as well as by internal administration (B); ♏j of liquor arsenicalis ter die, in attacks from bronchitis, local irritation, etc., allied to hay fever (R). **Belladonna,** relieves paroxysm when expectoration abundant, skin cool and moist (B); internally in large doses, also in cigarettes (Br). Atropine hypodermically is more efficient, gr. $\frac{1}{60}$ at bedtime to abort morning paroxysm (B). Large doses required, but very satisfactory (R). Was much valued by Dr. Salter and M. Sée (P). **Potassium Iodide,** when from acute bronchial catarrh, gr. xv–xx each 2, 3, or 4 hours (B. R): the best medicament to suppress the asthmatic attack, in bronchial asthma, is Potassium Iodide and Chloral (Lazarus). Is the specific in asthma, if any drug can be so called; should be given with Lactucarium (Sée). **Cocaine,** hypodermically, is used with the best results, even where other remedies failed to relieve (Mosler). The leaves of the coca-plant make the best cigarettes for asthma (Nachtigal). **Pilocarpine Hydrochlorate,** gr. $\frac{1}{6}$ in water, at bedtime, promptly and effectively relieves, in cases of bronchitic asthma with hypertrophic rhinitis. In some of nine years' standing it gave permanent relief apparently (Wyss). **Chloral,** may arrest paroxysm (R). **Chloroform,** inhaled from warm water. Anæsthetics relieve, but increasing doses required, leading to habit (R). **Ether,** in full dose, may avert a mild attack (B). **Amyl Nitrite,** inhaled, quickly checks spasmodic asthma (R). **Antimony,** in an affection of children like asthma. Dissolve a grain of tartar emetic in half a pint of water, and give a teaspoonful of this every $\frac{1}{4}$ hour for the first hour, then hourly. If vomiting induced, lessen the dose (R). **Coffee,** a small cup of very strong coffee often useful in a paroxysm (R). Asthmatics should not use it as a beverage (P). **Stramonium,** twenty grains of the dried leaves or ten of the powdered root may be smoked. Datura tatula sometimes better. Stramonium preparations are often of bad quality;—asthmatics advised to grow the drug themselves (R). **Grindelia,** gives relief in spasmodic form (B); three grains of extract thrice daily, to prevent attacks, or ♏xx–xxx of fluid extract every half-hour or hourly from onset of paroxysm (R). **Ethyl Iodide,** very valuable in spasmodic form, and lessens liability to subsequent attacks: ♏v–xx thrice daily by inhalation (B). **Cannabis Indica,** has been useful (R). **Sulphurous Acid,** by inhalation, spray, or fumigation (R). **Morphine,** hypodermically, quickly cuts short a paroxysm (B); in some cases morphine will induce a paroxysm (R). **Apomorphine,** gr. $\frac{1}{10}$ hypodermically, has been found effective; or gr. $\frac{1}{12}$ every 3 or 4 hours in camphor water, with or without Morphine or Ipecacuanha. **Tobacco,** smoking, sometimes relieves (R. P). **Asafœtida,** has been recommended (R); palliative only (P). **Colchicum,** in gouty subjects (R). **Bromides,** relieve but soon lose effect (B. R). **Eucalyptus,** smoked with Stramonium, Belladonna, Tobacco (B). **Quinine,** after acute symptoms subside, as antipyretic to succeeding fever and restorative tonic (B). **Potassium Nitrate,** the inhalation of fumes of burnt nitre paper will sometimes avert a paroxysm. Different methods of preparation useful for different cases (R). **Oxygen,** when no heart disease (R). **Silver Nitrate,** sometimes injected into trachea (R). **Chamomile Oil,** has been found very serviceable (P). **Sanguinaria,** is very useful in humid asthma, and occasionally so in the spasmodic form (R). **Galvanism,** of pneumogastric often relieves; + pole beneath mastoid process; — pole to epigastrium. Faradism of no use (B). **Prophylaxis,** avoidance of exciting causes, especially indigestible food, wet, damp, and sudden changes of temperature. Attention to the stomach will do most for many asthmatic patients. An important point is to take the heaviest meal early in the day, and very little solid food after 2 P.M. Shower-bath and out-of-door exercise, not, however, to a fatiguing extent (R). In special cases of reflex origin from exposed nerve-filaments, operative treatment of the nose and naso-pharynx, by galvanic cautery or otherwise is required (Lazarus).

Prescriptions.

Arsenical Cigarettes.

℞. Sodii Arsenatis, ... ʒss–j.
Aquæ Destillatæ, ... ℥j.

Moisten unsized white paper, and roll into cigarettes, each containing gr. ¼ to gr. j. of the salt. Two or three of these to be inhaled daily. (*Bartholow.*)

℞. Ext. Grindeliæ Fluidi, . . ℥ss.
Ext. Lobeliæ Fl., ... ʒij.
Ext. Belladonnæ Fl., . . ʒj.
Potassii Iodidi, ... ℥iij.
Glycerini, ... ℥iij.
M. Sig.—A dessertspoonful as required.

℞. Chart. Potass. Nitratis, . . j.

Burn in a close room and inhale the fumes.

℞. Ammonii Bromidi, ... gr. clx.
Ammonii Chloridi, . . . gr. xc.
Tinct. Lobeliæ, ... ʒiij.
Spt. Etheris Comp., . . . ℥j.
Syrupi Acaciæ, ... *ad* ℥iv.
M. Sig.—A dessertspoonful in water, every hour or two, for the paroxysm. (*Pepper.*)

℞. Potassii Bromidi, ... ℥j.
Potassii Iodidi, ... ℥ss.
Aquæ Cinnamomi, ... ℥iv.
M. Sig.—A teaspoonful in water every half-hour or hour. (B.)

℞. Belladonnæ Fol., ... ʒj.
Stramonii Fol.,
Hyoscyami, ... āā ʒss.
Extracti Opii, ... gr. iij.
Aquæ Laurocerasi, . . . q. s.

Dissolve the opium in the water, and moisten the leaves therewith. When dry, roll into twelve cigarettes. Smoke two to four daily. (*Trousseau.*)

℞. Tinct. Sanguinariæ,
Tinct. Lobeliæ,
Ammonii Iodidi, . . . āā ʒj.
Syr. Tolutani, ... ʒvj.
M. Sig.—A teaspoonful every 2, 3, or 4 hours, in humid asthma. (B.)

℞. Tinct. Lobeliæ, ... ℥j.
Ammonii Iodidi, ... ʒij.
Ammonii Bromidi, ... ʒiij.
Syrupi Tolutani, ... ℥ij.
M. Sig.—A teaspoonful every 1, 2, 3, or 4 hours. (B.)

℞. Spt. Etheris Compos.,
Liq. Morph. Sulph.
(gr. j ad ℥j), . . . āā ℥j.
M. Sig.—A teaspoonful every half-hour or hour in the paroxysm.

℞. Spt. Etheris Comp., . . . ℥j.
Tinct. Belladonnæ, . . . ʒj.
M. Sig.—A teaspoonful ter in die.

Astigmatism.

Atropine, a weak solution to aid examination of eye by dilating pupil, and paralyzing accommodation (B). **Duboisine,** as substitute for atropine, has more rapid action, with shorter duration of effects, and less conjunctival irritation.

Glasses, of suitable form, cylindrical in simple astigmatism, bi-cylindrical in mixed astigmatism. **Pray's Test Letters**, to determine degree and direction of the defect (C).

Atheroma.

Phosphorus, in minute doses, for atheroma, with cod-liver oil (B). **Arsenic** often of great value in atheroma, especially where imperfect action of kidneys (Br); indicated when there are puffy eyes, drowsiness, intellectual torpor (B). **Quinine**, gr. iij–x daily, in atheroma, with advantage (B). **Ammonium Bromide**, in atheroma, to promote absorption of deposit (Wa). **Digitalis**, may be useful in general capillary atheroma; cautiously! (W). **Cod-liver Oil**, with Phosphates, Hypophosphites, or Calcium Lactophosphate, in combination (B). [COMPARE ANEURISM.]

Atrophy.

Cod-liver Oil, has proved beneficial (Wa). **Olive Oil**, by inunction, every 12, 6, or 4 hours, successfully employed (Wa). **Arsenic**, has had remarkable success in muscular atrophy (Tr). **Electricity**, in progressive muscular atrophy, the induced current very strong at first, then weaker as improvement; interrupted currents from vertebral column and plexuses to nerves of affected muscles; in more extended forms, the constant current to the nerves, the induced to the muscles (Ros). **Massage**, removes the waste products and restores the muscular power (Br). [Compare EMACIATION, LOCOMOTOR ATAXIA.]

Balanitis.

Mercury, Hydr. Chlor. Corr. gr. j to ℥jss aquæ calcis, as lotion, if not much inflammation (Br). **Oil**, on linen, to inflamed part, beneath foreskin, which must be again drawn forward; strict cleanliness. **Astringent Lotions**, Alum, Zinc Sulphate, with warm water injections (Br). **Lime-water**, the best lotion if much inflammation (D). **Tannin**, in alcohol, equal parts, as dressing after washing with a weak solution of common salt. **Carbolic Acid**, a 5 per cent. solution, on cotton rag after washing, thrice daily, is generally sufficient. [Compare PHIMOSIS, GONORRHŒA.]

Bed-sores.

Alcohol, Brandy, or Eau-de-cologne, to harden skin of parts exposed to pressure (R); as wash to parts threatened (B). **Glycerin**, or glycerin cream, rubbed over the parts exposed to pressure, after washing, morning and evening, is one of the best preventives (R). **Alum**, ℥ss, whites of four eggs, Tinct. Camphoræ, ℥ij, an excellent application (B). **Charcoal**, sprinkled over the black slough, which is then covered with a poultice (R). **Galvanic Couplet**, of zinc and silver, connected by a copper wire; one element on sore, the other on adjacent part (B). **Silver Nitrate**, a solution (gr. xx–℥j) to be painted on the threatened but unbroken skin, as soon as it becomes red, will prevent sores; if Nitrous Ether solution be used, gr. v to the ℥ is enough (R). **Iodoform**, dusted over sores (R). **Linen**, air-dried better than that which is ironed or mangled, by reason of its greater softness. **Aristol**, is an excellent application.

Biliousness.

Podophyllum, acts as a cathartic (B); corrects deficient secretion of bile, especially in children and infants; gr. $\frac{1}{20}$ to $\frac{1}{10}$, every six hours, to correct white or clayey stools; also in general hepatic derangement (P). **Aconite**, in occasional doses, improves the effect of Podophyllum (R). **Mercurial Cathartics**, act only as purgatives; Calomel gr. j–x, or Pil. Hydrarg. gr. v–x; Mercury as purgative restricted to cases where there is excess or deficiency of bile (B); frequent small doses of gray powder for deficiency (R); Calomel, gr. iij, followed by ʒij each of Rochelle and Epsom Salts, when the tongue is heavily coated and furred (Gross). **Mercury, Yellow Oxide,** in doses of gr. $\frac{1}{60}$ to $\frac{1}{30}$, in trituration with sugar of milk, exceedingly efficient in many disordered conditions of the alimentary canal and its appendages (Schaffer). **Bryonia,** is worthy of commendation in the ordinary bilious headache with vomiting, and in general hepatic derangement known as sluggish liver (P). **Hydrastis,** gtt. v–xv of fluid extr. daily before meals, for biliousness with chronic gastric catarrh and dyspepsia (B). **Mineral Acids,** before meals, Hydrochloric Acid and Pepsin after meals, in atonic dyspepsia (B). **Stillingia,** when deficient biliary secretion (B); may be used in place of Mercury (Br). **Ammonium Iodide,** gr. j–iij in water each 2, 3, or 4 hours, when catarrh of duodenum and biliary ducts (B). **Ammonium Chloride,** is much employed in Germany for hepatic derangements, and with good success. **Euonymus,** is considered very efficient by many practitioners in cases of hepatic dyspepsia, or "bilious attacks," so-called. **Manganese,** for gouty subjects. **Rhubarb,** as a cholagogue. **Aloes,** in biliousness with constipation. **Angostura,** is suitable to worst forms of bilious fevers (P). **Calumba,** is of benefit in many forms (P). **Alkalies,** and their laxative salts, in bilious state, with uric acid diathesis (B). **Milk-cure,** in obstinate cases; buttermilk or skimmed milk often agrees best (B). [Compare DYSPEPSIA, HEPATIC CONGESTION, DUODENAL CATARRH.]

Prescriptions.

℞. Ext. Stillingiæ Fl., . . . ʒv.
Tinct. Aloes, ... ʒij.
Tinct. Nucis Vom., . . . ʒj.
M. Sig.—Twenty drops in water thrice daily. (B.)

℞. Ext. Euonymi, ... ʒss.
Ext. Hyoscyami, ... gr. xv.
Ext. Gentianæ, ... gr. vj.
Fiat massa, et div. in pil. xij.
Sig.—One pill every other day.

℞. Hydrarg. Oxidi Flavi., . . gr. j.
Sacch. Lactis, ... q. s.
Triturat. et div. in chart. xlviij.
Sig.—One powder dry on the tongue twice daily.

℞. Massæ Hydrargyri,
Ext. Colocynthidis Co., āā gr. iij.
M. et div. in pil. ij.
Sig.—Take at once, and follow in a few hours with a saline cathartic.

Bladder, Irritable.

Belladonna, in nocturnal incontinence, due to relaxation of sphincter, or irritable mucous membrane (B); gtt. v–xx of tinct. every 3 or 4 hours give gradual but sure relief (P). **Cantharis,** in women, without acute inflammation (B); incontinence on coughing (R). **Benzoic Acid,** when from enlarged prostate, removes fetor of urine; also renders phosphatic or alkaline urine acid (P). **Ammonium Benzoate,** may be used instead of Benzoic Acid (Br). **Gelsemium,** the best remedy for irritable bladder of women of hysterical type, with constant desire to urinate (B). **Cubeb,** is often successful in women, but Cantharis generally better (B); is of especial value when vesical catarrh present (P). **Aquapuncture,** strange to say, has been used with considerable success (B). **Cannabis Indica,** in spasm of the bladder, and in irritable conditions of that organ is generally useful. **Eucalyptol,** is often very efficient, but frequently fails, ♏ij on sugar two or three times a day. [Compare CYSTITIS, DYSURIA, ENURESIS, LITHIASIS, CALCULI, URINARY DISORDERS.]

Prescription.

℞. Tinct. Gelsemii, ... ʒss.
Sodii Bromidi, ... ʒiij.
Ext. Tritici Fluidi, . . . ℥iss.

Sig.—A teaspoonful in water every four hours, for irritable bladder.

Bladder, Paralysis of.

Cannabis Indica, in retention from spinal disease (R). **Ergot**, in paralytic dysuria, especially when sensation of bladder being only partially emptied (P); when incontinence from paralytic sphincter, and in paralysis from over distention (Wa.). **Arnica**, has proved curative (P). **Strychnine**, gr. $\frac{1}{60}$ to $\frac{1}{30}$ useful (B). **Cantharis**, often given with excellent effect, when bladder atonic (Wa). **Galvanism**, may greatly benefit (B); electro-magnetic current from the bladder to the spine, of great use (Wa).

Blepharitis.

Pulsatilla, internally and externally (P). **Mercury**, after detaching crusts, rub in brown citrine ointment (B); should be diluted with vaseline or simple ointment (Br). **Tannin**, powdered, or tannic acid solution, gr. j–x to the ℥ (B). **Alum**, after acute symptoms subside (B); a solution, gr. viij–℥j aquæ, every ¼ or ½ hour, an excellent application (R). **Hydrastis**, as lotion, very serviceable (P). **Bismuth**, equal parts of the subnitrate and glycerin to the inflamed surface, in ciliary and glandular blepharitis (Wa). **Ergot**, the fluid extract locally, gives excellent results (B).

Prescriptions.

℞. Aluminis, ... gr. x.
Aquæ Rosæ, ... ℥ij.
M. Sig.—Lotion for the eyelids. (B.)

℞. Unguent. Hydrarg. Nitrat., ʒj.
Petrolati Molli, ... ʒiij.
M. Sig.—Ointment for the margins of the eyelids.

Boils.

Belladonna, as plaster, to subdue inflammation, or use lint wetted with Atropine, gr. iv, Rose-water, ℥j (B); with Glycerin locally, to allay pain; internally often successful (R. Wa). **Sulphides**, in small doses (gr. $\frac{1}{10}$ to ½ of Calx Sulphurata) every hour or two, or **Sulphurous Mineral Waters** will abort or mature, and aid to expel pus (R); of no use in the boils of diabetes (R). **Aromatic Sulphuric Acid**, for the tendency, gtt. x–xv, in plenty of water thrice daily. **Silver Nitrate**, gr. v–xx to ℥j of nitrous ether, painted over adjacent part, to abort; specific if used early (R). **Boric Acid**, gr. xij daily, in 2 wafers; also a 4 per cent. aqueous solution, warm, externally by gentle friction, 4 or 5 times a day, and on compresses to the parts—will abort furuncles yet in the commencement of development, rapidly cure those matured, and prevent new ones (Alison). **Arsenic**, long-continued, for succession of boils (B); to lessen tendency to recurrence (Br). **Opium**, a thick extract locally (R). **Camphorated Alcohol**, smeared over boils in the earliest stage, then, when skin dry, smear with camphorated oil, to abort (R). **Sodium Phosphate**, the best remedy for the systemic condition which produces boils (R). **Carbolic Acid**, undiluted, on a thread passed through centre of boil while recent, will abort it. A carbolized solution of 5 per cent. strength, on dressings after opening a boil, will prevent a second crop, due, as is often the case, to the migration of cocci into the skin from the original boil. **Counter-irritation**, by blisters or Iodine around the boil (R). **Collodion**, at papular or pustular stage (R). **Salicylic Acid**, locally to destroy the parasitic organism (staphylococcus pyogenes), on which boils depend. [See formula below.] **Hydrarg. Biniodide**, the oint. locally, with Calcium Sulphide, gr. j daily in divided doses internally, leaves little to be desired so far as treatment is concerned. **Corrosive Sublimate**, the B. P. solution (1 in 875), dropped into the ear twice daily, in furunculosis of the ear, also on cotton wool in the canal, gives satisfactory results and prevents return. **Aluminum Acetate**, a solution in water, 1 to 4, causes the speedy abortion of boils in the external auditory canal (Grosch). **Poultices** to assist maturation and allay pain, may be smeared over with Belladonna or Opium (R). [Compare ACNE, CARBUNCLE.]

Prescriptions.

℞. Calcis Sulphurat., . . . gr. iij.
Sacch. Lactis, . . . q. s.
Triturat. et div. in chartas xxx.
Sig.—One powder every 2 hours.

℞. Acidi Salicylici, ... ʒij.
Emplast. Saponat., . . . ℥ij.
Emplast. Diachyl., . . . ℥j.
Sig.—Ointment for boils. (*Heitzmann.*)

Bone Diseases.

Iodine, in scrofulous affections of bones, should be used locally, with Ferrous Iodide or Cod-liver Oil internally, nutritious diet, wine, out-door exercise (Wa). **Cod-liver Oil**, in scrofulous affections, may be relied on if perseveringly used, and accompanied by good hygienic conditions (Wa). [Compare CARIES, EXOSTOSIS, NODES, PERIOSTITIS, RACHITIS, SPINA BIFIDA, etc.]

Breath, Fetid.

Potassium Permang., gr. j to ℥j aquæ rosæ, as a wash for the mouth (B). **Chlorine**, as solution of chlorinated lime, to remove fetor (B). **Carbolic Acid**, a dilute solution, as wash for mouth (W). **Camphor**, is used as a corrective (R). Look for bad teeth, disordered digestion, and in very offensive cases for gangrenous lungs; cleanliness of teeth and mouth are essential. **Thymol**, in solution, as a mouth-wash is very efficient in removing the odor of tobacco from the breath.

Prescriptions.

℞. Calcis Chlorat., ... ʒiij.
Aquæ Destillatæ,
Alcoholis, ... āā ʒij.
Olei Rosæ, ... ♏iv.
M. Sig.—A teaspoonful in a glassful of water as a lotion for the mouth. (B.)

℞. Acidi Salicylici, ... ʒj.
Liq. Ammonii Acet., . . ℥iij.
Glycerini, ... ℥j.
Aquæ, ... q. s. *ad* ℥vj.
M. Sig.—A tablespoonful every six hours. (*Robinson.*)

Bright's Disease, Acute.

Aconite, should be given immediately on the appearance of the nephritis in scarlatina (R); as a diuretic, advocated (P). **Cantharis**, after subsidence of the acute stage, one-minim dose every 3 hours will stop the hematuria (R). **Digitalis**, (infusion ℥ss) the best remedy in renal dropsy from acute desquamative nephritis (B); only diuretic as long as dropsy lasts (R). **Cannabis Indica**, as diuretic; is especially useful when bloody urine (R). **Eucalyptus**, sometimes effective; cautiously, or it will aggravate symptoms (B). **Hyoscyamus**, in irritable kidneys (P); may be substituted for Belladonna (Wa). **Jaborandi**, is much used (Da C); large doses very depressant to the heart, but ♏v–x of the fluid extract every half-hour or hour will produce sweating; may be combined with tinct. of Digitalis (Smith); or **Pilocarpine Nitrate**, to excite skin when symptoms urgent, gr. $\frac{1}{12}$ to $\frac{1}{8}$ for adult (B). **Turpentine**, in drop or half-drop doses every 2 to 4 hours, controls the dropsy in a remarkable manner (P); hot turpentine epithems are serviceable, but may increase the action of the kidneys (Wa). **Belladonna**, has often proved useful (P); may be used with benefit (Wa). **Jalap**, the compound powder is the most generally useful purgative, used in the early morning, to produce free watery evacuations, when uræmic symptoms supervene (B). **Gallic Acid**, checks albuminuria (B). [See ALBUMINURIA, for formula.] **Juniper**, as diuretic; often aggravates (P). **Poultices**, large, of linseed meal, made light and soft as possible, beneficial (Wa). **Cupping**, in lumbar region, ameliorates acute desq. nephritis, and congestion of the kidney (B); cupping or leeches over the loins, with opiates freely, diluents, and demulcents, with rest and antiphlogistic regimen, often suffice (Wa). A **Vapor-bath** or **Warm Pack**, to increase the action of the skin (B).

Diluents, as milk, and Potassium Bitartrate in solution, should be used freely to relieve the congestion and remove obstructions from the tubules (B). **Iron**, after the acute symptoms have subsided, as a tonic, the most suitable preparation being Basham's mixture (the now official Liquor Ferri et Ammonii Acetatis) in ℥ss doses thrice daily (Da C). [Compare Albuminuria, Hematuria, Uræmia.]

Prescriptions.

℞. Ext. Pilocarpi Fl., ... ℥ ss.
Vini Ipecac, ... ʒ jss.
Mucil. Acaciæ, ... ʒ j.
Aq. Cinnamomi, . . . *ad* ℥ ij.
M. Sig.—A teasp. every four hours until free diaphoresis.

℞. Pulv. Jalapæ Comp., . . . ʒ iv.
Div. in chartulas no. iv.
Sig.—One in water before breakfast.

℞. Potassii Acetatis, ... ʒ ijss.
Infusi Digitalis, ... ℥ iij.
Infusi Juniperi, ... ℥ iij.
M. Sig.—A tablesp. every 2 to 4 hours as a diuretic.

℞. Liq. Ferri et Ammonii Acetatis (U. S. P.), ... ℥ viij.
Sig.—A tablesp. thrice daily, as soon as hematuria disappears.

Bright's Disease, Chronic.

Lead, diminishes the albumen (R). **Gallic Acid**, to lessen the albuminuria (A). [See under Albuminuria for formula.] **Hydrastis**, lessens excretion of albumen (B). **Potassium Bitartrate**, to prevent dangerous accumulations in cellular tissue or important cavities, also to draw off effete matters; care must be used as it is a brisk purgative, and is weakening (R); in form of "cream-of-tartar lemonade," an agreeble diuretic (B). **Jalap**, the compound powder occasionally, as derivative cathartic, to relieve the kidneys (Da C). **Nitroglycerin**, ♏ $\frac{1}{100}$ to dilate peripheral vessels, relieves the heart and the renal congestion, and diminishes albumen (B). **Fuchsin**, in doses of gr. vij–xv daily, used with considerable success in different stages of the disorder, and was well borne (Riess). **Oleum Erigerontis**, lessens albumen, lowers vascular tension, improves general condition, and favorably influences the headache, nausea, and other uræmic symptoms (B). **Cod-liver Oil**, is very useful (R). **Cannabis Indica**, as diuretic when bloody urine (R). **Turpentine**, sometimes given in very small doses as a diuretic, and to check hematuria (R); half-drop or drop doses every 2 to 4 hours very successful in dropsy with albuminous urine depending on non-desquamative disease of the kidneys. **Jaborandi**, in uræmia is very satisfactory (B); large doses very depressant to the heart (Smith); ♏ xx of the fluid extract ter in die if the urine decreases much (Da C). **Iron**, to improve digestion and correct anæmia; the tinct. of the chloride or tinct. ferri acetatis preferred (B); in chronic tubular nephritis with cardiac hypertrophy the liq. ferri et ammonii acetatis, ℥ss ter in die, with an occasional vapor-bath (Da C). **Chimaphila**, has power over various forms of nephritic disease, especially when albuminuria present (P). **Eucalyptus**, in chronic desquamative nephritis, cautiously used, will cause improvement (B). **Elaterium**, for the dropsy, as a derivative cathartic; must be cautiously used (R). **Bromides**, are useful in the convulsions (R). [See Uræmia.] **Potassium Iodide**, has improved some cases, which were possibly due to syphilis (R). **Aurum**, the chloride in pill gr. $\frac{1}{30}$ to $\frac{1}{20}$ ter in die, persistently, in chronic interstitial nephritis, to arrest hyperplasia of the connective tissue; may be combined with **Arsenic**, which has a similar influence (B). **Mercuric Chloride**, acts in the same manner, gr. $\frac{1}{10}$ bis die (Da C). **Milk-cure**, has been very successful; skim-milk alone for some time, then gradual addition of other diet (B). **Water**, in large draughts, as diuretic, when excretion of solids is deficient (Br); hot fomentations to lumbar region (B). **Baths**, warm and Turkish, when uræmic symptoms and dropsy; discretion needful, as baths may weaken (R). **Mineral Waters**, especially the Buffalo Lithia Water, of Virginia, which has many advocates. **Food** should be nourishing; milk, eggs and rare beef are particularly suitable (Da C). Peanuts are an excellent article of food for subjects of kidney disease, by whom foods rich in animal albumen are to be avoided (Furbringer). [Compare DROPSY, URÆMIA.]

Prescriptions.

(Compare those under Bright's Disease, Acute.)

℞. Strychninæ Sulphatis, . . gr. ¼.
Tinct. Ferri Chloridi, . . ℥ss.
Acidi Acetici, ... ʒjss.
Curacoæ, ... ℥j.
Liq. Ammonii Acetat., *ad* ℥vj.
M. Sig.—A tablesp. every 6 hours, followed by a glass of water. For the anæmia.

℞. Tinct. Nitro-glycerini, 1 per cent.
Sig.—One drop, gradually increased to five, four times daily, on sugar. (B.)

℞. Auri et Sodii Chloridi, . . gr. jss.
Aquæ Destillatæ, . . ℥iv.
Solve. Sig.—A teasp. ter in die.

Bronchiectasis.

Quinine, the most useful remedy as a tonic (B). **Phosphates**, are undoubtedly useful, so also are the Hypophosphites (B). **Chlorine**, in solution as a stimulant and deodorizer, or as inhalation to lessen fetor (Br). **Palliation** of the cough and expectoration, with care of the general health of the patient, is all that can be accomplished. [Compare EMPHYSEMA.]

Bronchitis, Acute.

Acetanilid, in dose of gr. iv every two hours, has often arrested the attack within 24 hours. **Aconite**, gtt. ss–j every hour (B); in catarrh and bronchitis of measles (R). **Tartar Emetic**, first stage, gr. $\frac{1}{20}$ to $\frac{1}{12}$, especially if cough is violent (B); gr. j to a quart of water, a teasp. of this every hour for the wheezing and cough of slight bronchitis in children (Smith);—gr. ¼ to ½ every 2 or 3 hours (R). **Ipecacuanha**, as wine, when expectoration profuse and difficult to expel (R); in dry stage (P); **Ipecac**, when secretion is scanty and dry, —**Squill**, when the secretion, though copious, is difficult to expel (Br). **Lobelia**, as expectorant (B); for paroxysmal dyspnœa (R). **Sanguinaria**, after subsidence of acute symptoms, as expectorant (B); very successful (P). **Quinine**, to reduce temperature (R). **Colchicum**, useful when gouty diathesis (P). **Opium**. Morphine and Quinine combined, or Dover's powder, to abort an attack; also with expectorants to allay cough (B); in frequent and violent coughs, without obstructed oxidation; also to check excessive secretion (R); as sudorific very useful, gr. x of Dover's powder (P). **Carbolic Acid**, as spray, a 5 per cent. solution with steam atomizer, prompt and efficient. **Apomorphine**, the hydrochlorate in doses of gr. $\frac{1}{30}$ every three hours, the best of all expectorants. **Cimicifuga**, an excellent expectorant, and useful when acute symptoms have subsided (B). **Nitric Acid**, ♏x of dilute acid relieves (B). **Asafœtida** or **Ammoniacum**, the last best, in bronchitis with wheezing of old people (R). **Asafœtida**, is an excellent stimulant of respiration, especially when the capillaries have become clogged with the products of inflammation, and suffocation seems imminent. Here also the **Cold Bath** is a means of enabling the patient to expel the mucus, the equal of which has not been yet advanced. The cold bath may be used for even very young infants, and should be but momentary (W). **Ammonium Carbonate**, when the expectoration is profuse, and the condition low (R). **Ammonium Acetate**, from its sudorific action is always indicated, especially in children (Dessau). [See formula below.] **Cubeb**, very useful, especially when secretion copious and system relaxed (P). **Copaiba**, after subsidence of the fever, the most serviceable expectorant, but nauseous (B). **Counter-irritants**, mustard as large poultice, with linseed or oatmeal, or both, very useful (R). **Iron**, **Lead**, **Zinc Oxide**, to check profuse secretion (R). **Heat** to chest by linseed poultices, of great service. **Diet**, should be light and in liquid form. **Temperature** of atmosphere in room should be about 80° F., and the air moistened by steam. [Compare COUGH.]

Prescriptions.

℞. Antim. et Pot. Tart., . . . gr. ij.
Liq. Ammonii Acet., . . . ℥iv.
Spt. Etheris Nitrosi, . . . ℥j.
Tinct. Aconiti, ... ʒss.
Syr. Simplicis, . . q. s. *ad* ℥vj.
M. Sig.—A teaspoonful every 2 or 3 hours. In first stage.

℞. Liq. Ammon. Acetat., . . ʒiv.
Spt. Etheris Nitrosi,
Syr. Ipecac., ... aa ʒjss.
Syr. Senegæ, ... ℥j.
Syr. Limonis, ... ℥j.
M. Sig.—A teaspoonful every 3 hours for children. (*Dessau.*)

℞. Tinct. Aconiti, ... ♏viij.
Aquæ Cinnamomi, . . . ℥j.
M. Sig.—A teaspoonful every ½ hour for 2 hours, then every hour. In acute inflammatory form.

℞. Ext. Cimicifugæ Fl., . . . ℥ss.
Tinct. Opii Deodorat., . . ʒj.
Syr. Tolutani, ... *ad* ℥ij.
M. Sig.—A teaspoonful every 4 hours. (B.)

℞. Tinct. Sanguinariæ,
Tinct. Lobeliæ, . . . aa ʒj.
Vini Ipecac., ... ℥ij.
Syrupi Tolutani, . q. s. *ad* ℥iv.
M. Sig.—A teasp. every 3 hours. (B.)

℞. Apomorph. Hydrochlor., . gr. ¼.
Ac. Hydrochlor. Dil., . . ♏iij.
Syrupi Senegæ, ... ℥v.
Aquæ Destillat., ... ℥j.
M. Sig.—A teaspoonful every 2 hours, for a child of 3 years as expectorant. Should be put up in a blue bottle.

℞. Vini Ipecac., ... ʒij.
Liq. Potassii Citratis, . . . ʒiv.
Tinct. Opii Camphorat.,
Syr. Acaciæ, ... aa ℥j.
M. Sig.—Tablesp. ter die. In first stage of ordinary acute bronchitis. (*Da Costa.*)

℞. Ext. Eriodyctii Fl., . . . ʒvj.
Ext. Senegæ Fl., ... ℥iv.
Syr. Pruni Virginianæ, . . ℥ij.,
Aquæ, ... q. s. *ad* ℥iv.
M. Sig.—Teaspoonful every 3 hours.

Bronchitis, Capillary.

Ipecacuanha, as emetic, preferred to tartar emetic in capillary bronchitis of very young or very old (B); as wine, when expectoration profuse and difficult to expel (R). In very young infants should be used in place of antimony (M & P). **Squill**, as expectorant, may be used with benefit (Wa). **Antimony**, sulphurated, gr. $\frac{1}{12}$ in combination with Dover's powder, every 2 or 3 hours, when the temperature very high, and pulse full and strong; must be stopped as soon as nausea and vomiting begin (M & P). **Lobelia**, for paroxysmal dyspnœa (R). **Ammonium Carbonate**, when expectoration profuse and strength diminishing; in severe bronchitis or broncho-pneumonia of children, especially when prostrate and livid (R); has probably a specific action on the diseased tissue and its products (Clymer). **Ammonium Iodide**, in small, rapid doses, often gives great relief to the catarrhal process (Da C); often gives the most astonishing relief (B). **Ammonium Muriate**, gr. ij every 2 hours, either alone or with Potassium Chlorate (Clymer). **Serpentaria**, in capillary bronchitis of children gives excellent results (B). **Turpentine**, one of the best stimulants when vital powers are depressed and peripheral circulation feeble (B). **Camphor**, to allay cough and promote expectoration (B). **Hydrocyanic Acid**, for cough and tendency to spasm. **Hydrarg. Subsulph.** effective as emetic (B). **Mustard**, as poultice or bath, useful (R); the most important part of the treatment (M & P). **Poultices**, to encircle the whole chest in children (R). A jacket of cotton-wool around the chest. **Steam**, by inhalation, may be impregnated with sedatives, or with Carbolic acid; is of great importance (M & P). **Quinine**, in that form of capillary bronchitis occurring in tropical climates, and where marked debility (M & P). **Stimulants**, are often necessary, especially in the suffocative form, and where marked prostration (M & P). **Emetics**, are necessary when suffocative symptoms become prominent. [Compare COUGH.]

Prescriptions.

℞. Ammonii Iodidi, ... ʒj–ij.
Ammonii Carbonat., . . . ʒij–iij.
Syr. Glycyrrhizæ,
Syr. Tolutani, ... āā ℥ij.
M. Sig.—A teasp. every 2 or 3 hours.

℞. Quininæ Sulph., ... gr. vj.
Ac. Sulphurici Dil., . . . ♏xij.
Syr. Simplicis, ... ℥ss.
Aquæ, ... ℥ijss.
M. Sig.—A teasp. every 2 hours to child of 2 or 3 years; older children require more quinine. (M. & P.)

℞. Liq. Ammonii Acet., . . . ℥ss.
Syr. Ipecac., ... ʒj.
Liq. Morph. Sulph.
(gr. j ad ℥j), ... ♏xl.
Syr. Acaciæ, ... ℥j.
Aquæ, ... ʒjss.
M. Sig.—A teasp. every 2 hours for a child 2 years old. When surface pale and expression languid, skin cool. (M. & P.)

℞. Ext. Serpentaria Fl., . . . ℥ss.
Ammonii Carbonat., . . . ℥ij.
Syr. Tolutani, ... ʒjss.
M. Sig.—A teasp. every 2, 3 or 4 hours.

Bronchitis, Chronic.

Antimony, when expectoration copious and difficult to expel (R). **Arsenic**, where emphysema, in cigarettes (B). [See *ante*, ASTHMA, for formula.] **Sulphur**, gr. v–x, in severe cases, with abundant discharge, especially where constitutional debility (R). **Sulphurous Acid Gas**, inhalations, or the acid in form of spray, sometimes beneficial (R). **Hydrogen Dioxide**, the solution internally, doses of ʒj–iij, diluted with 3 to 4 of water, gives great relief in chronic bronchitis with dyspnœa. **Lobelia**, for paroxysmal dyspnœa (R). **Ammonium Chloride**, combined with stimulating expectorants, such as Serpentaria, Sanguinaria, or Eucalyptus (B); when secretion is thick and abundant, may be applied by an atomizer (R). **Carbolic Acid** as inhalation of spray, 1 part to 100 of water; may be combined with tincture of Iodine (R); a 5 per cent. solution in steam atomizer as inhalation. **Hydrastis**, fluid extract, locally and internally (B); of great value internally and externally in chronic coryza (P). **Senega**, especially in the aged (R). **Iodine**, by inhalation, sometimes used (R); the **Iodides**, especially Ammonium Iodide, are very serviceable in combination with expectorants (B). **Colchicum**, in gouty subjects (R). **Balsam of Peru**, and of Tolu, when copious secretion of pus (R). **Ammonia**, as inhalation, to lessen expectoration (R). **Oleum Anthemidis**, in pulmonary catarrh with excessive secretion and difficult expectoration, a very useful remedy, ♏ij–iv (P). **Ammoniacum**, the mistura, with Ammonium Chloride or Carbonate, efficient in the bronchitis of old people, with wheezing and abundant secretion (R). [See BRONCHORRHŒA, for formula.] **Benzoin**, ʒj of the compound tincture to boiling water, as inhalation; eases cough and lessens expectoration (R). Sometimes used by atomization (B). **Phosphates**, for the resulting cachexia (B); the Calcium Phosphate (R). **Serpentaria**, as stimulant. **Alum**, powdered, dusted over surface (B). **Silver Nitrate**, locally (gr. v–xx to the ℥) on sponge probang (B). **Camphor**, to allay cough and promote expectoration (B). **Sumbul**, has decided efficacy (P). **Opium**, with expectorants, to allay cough (B); when cough frequent and violent, without any signs of obstructed oxidation; also to check excessive secretion (R). **Codeine**, gr. ⅙ every 3 to 6 hours, when other opiates are not well borne (P). **Ethyl Iodide**, by inhalation, is very valuable by reason of its local influence, ♏v–xx thrice daily (B). **Grindelia**, an excellent expectorant, and especially when cough is troublesome (B). **Strychnine**, as a respiratory stimulant and to check the reflex vomiting (B). The Syrup of the Phosphates of Iron, Quinine and Strychnine. **Squill**, in chronic forms with tenacious sputa, but not when fever or acute inflammation (R). The Pil. Ipecac. cum Scillâ, of the Br. Ph. in 10-grain doses night and morning, is a most useful remedy (Br). **Tar**, diminishes the secretion and allays the cough (P); gr. ij in pill every 3 or 4 hours in chronic paroxysmal winter cough (R). **Digitalis**, when interstitial pneumonia and general anasarca (B). **Eucalyptus**, valuable in chronic cases of broncho-pulmonary catarrh (B). **Gallic Acid,** useful in some forms of chronic broncho-pulmonary catarrh (B). **Iron,** with free expectoration, Mistura Ferri Composita; or better, the Phosphate of Iron, Quinine, and Strychnine (B); to check profuse bronchial secretion (R). **Myrtol,** in fetid bronchitis, of great value (Gubler). **Copaiba,** when purulent secretion (R); for profuse secretion, the best of all expectorants, but nauseous (B). **Cubeb,** when profuse expectoration, has similar remedial influence (B). [See BRONCHORRHŒA, for formula.] **Terpin Hydrate,** gave immediate and curative results in cases of long-standing and obstinate bronchitis, which had resisted all other treatment; gr. xlviij, in Glycerin, q. s. ut. ft. solutio, Syr. Lactucarii, q. s. *ad* ℥ij, of which a teasp. every three hours (Boyland). **Terebene,** is proving very valuable; requires an equal weight of light magnesium carbonate to suspend it. **Koomiss-cure,** possesses great value (B). **Cod-liver Oil,** a teaspoonful ter die, after meals, of great service, if continued (B); to control expectoration (R). **Poultices,** made large, of hot linseed meal to cover the chest, when congestion of lungs. **Olive Oil,** inunctions to chest, has soothing and strengthening effects. **Diet,** nutritious, and stimulants necessary when great prostration. Koomiss is an excellent article of diet. [Compare COUGH, EMPHYSEMA.]

Prescriptions.

℞. Ext. Eucalypti Fl., ... ℥j.
Ammonii Chloridi, . . . ʒj.
Ext. Glycyrrhizæ, ... ʒij.
Syrupi Tolutani, ... ℥iij.
M. Sig.—A teasp. 4 to 6 times daily.

℞. Tinct. Sanguinariæ, . . . ʒj.
Ammonii Chloridi, . . . ʒj.
Syrupi Tolutani, ... ℥j.
Spt. Etheris Nitrosi, . . . ℥ss.
Aquæ, ... ℥iijss.
M. Sig.—Tablesp. p. r. n.

℞. Syrupi Scillæ, ... ℥ss.
Tinct. Opii. Camph., . . . ʒij.
Ammoniaci, ... ʒss.
Syrupi Tolutani, ... ʒx.
M. Sig.—A teasp. p. r. n.

℞. Ammonii Chloridi, . . . ʒiij.
Syrupi Picis Liquidæ, . . ℥vj.
M. Sig.—Tablesp. 4 times daily.

℞. Ammonii Carbonat., . . . gr. xl.
Infusi Serpentariæ, . . . ℥iv.
M. Sig.—A tablesp. every 3 hours.

Bronchorrhœa.

Ammonium Iodide, often improves the condition, especially if used with Arsenic (B). **Eucalyptus,** the oil of great utility (B); ♏ij ter die on sugar, or see formula above. **Sulphurous Acid Gas,** as inhalations, or in solution as spray, sometimes improves (B). **Lead Acetate,** as astringent to restrain secretion (B); gr. j–ij every 2 hours. **Petroleum,** crude, in capsules, has been administered with rapid amelioration as the result (Blache). **Grindelia,** an efficient remedy (B). **Iodine,** as liniment, over front and back of chest (R). **Spinal Ice-bag,** to restrain excessive secretion (R). **Quinine,** and the **Phosphates,** also **Cod-liver Oil,** as restoratives (Wa). **Copaiba,** the most serviceable expectorant, but nauseous (B); when copious secretion of pus (R). **Cubeb,** has remedial effect in chronic bronchial affections with profuse expectoration (B). **Asafetida,** is of great benefit (B). **Turpentine,** an excellent remedy when fetid expectoration; may be used internally (♏v) or by inhalation from atomizer. **Terpin Hydrate,** seems to be even more efficient than turpentine, in doses of gr. x–xx daily. **Carbolic Acid,** internally (♏j), and by spray (gr. v. ad ℥j aquæ), often of great utility (Da C). **Benzoin,** by inhalation, for its local influence. **Myrtol,** is largely eliminated by the lungs, and is a most valuable agent in bronchorrhœa and fetid bronchitis, acting as a stimulant and antiseptic (Gubler); dose, ♏ij in capsules (Br). [Compare COUGH.]

Prescriptions.

℞. Copaibæ,
Syrupi Tolutani, . . . āā ℥ss.
Spt. Etheris Nitrosi, . . . ℥j.
Aquæ Menth. Pip., . . . ℥ij.
M. Sig.—A teasp. every 4 hours.

℞. Ammonii Chloridi, . . . ʒj.
Emulsi Asafœtidæ, . . . ℥iv.
Misce. Sig.—Tablesp. as required.

℞. Copaibæ,
Bals. Tolutan.,
Pulv. Acaciæ, ... āā ℥ss.
Ac. Sulph. Aromat., . . . ʒss.
Aquæ Destillat., ... ℥vj.
M. Sig.—Tablesp. bis vel ter in die.

℞. Potassi Iodidi, ... ʒj.
Ac. Nitrici Dil., ... ʒiij.
Tinct. Belladonnæ, . . . ʒj.
Ac. Salicylici, ... ʒj.
Aquæ Camphoræ, q. s. *ad* ℥iv.
M. Sig.—Dessertsp. in water 3 or 4 times daily, for fetid bronchitis.

Bruises.

Arnica, the infusion very useful as an external application for bruises and cuts; also an excellent internal remedy for internal bruises, shake, falls, blows, or shock; ♏v–x every 2 or three hours (P); in bruises, sprains, etc. (Wa). **Aconite**, the liniment locally to painful sprains and bruises (Wa). **Capsicum**, a strong tinct. applied with gum, said to act like a charm on discolored bruises (R). **Sulphurous Acid**, a solution constantly applied (R). **Oil of Bay**, as stimulating liniment (P). **Opium**, the tincture with Linimentum Saponis (ʒj to ℥j) diligently rubbed in two or three times a day, affords great relief (Wa).

Bubo.

Mercury, necessary in the indurated buboes diagnostic of syphilis (Ricord); Calomel locally applied for indolent buboes refusing to heal after opening (H). **Nitric Acid**, indolent and broken bubo (R). **Sulphides**, are less useful in maturating buboes than in the case of ordinary boils or abscesses (R); to check suppuration (St). **Iodoform**, locally, has proved useful (Wa). **Iodine**, applied to produce vesication around a bubo, relieves inflammation (R); freely every day, with rest and compression, to cause absorption (St). **Silver Nitrate**, lightly to surface, to stimulate indolent buboes (Wa). **Potassio-tartrate of Iron**, 30 parts to 250 aquæ destil., three tablesp. daily, also as lotion to sore (Ricord); phagedena (St). **Tartar Emetic**, gr. j every two hours reduces inflammation in many cases (Wa). **Ice**, greatly relieves (B). **Surgical**.—Open freely with a bistoury when suppurating; if pus is virulent, the open bubo is a chancroid, and must be treated as such (Keyes). **Pressure**, by compressed sponge under a spica bandage, or a shot bag, the best local treatment for indolent bubo (Keyes); in all cases cleanliness, rest in recumbent posture, emollient poultices. **Diet**, should be generous, with cod-liver oil, in phagedenic bubo. The treatment of Syphilitic Bubo is that of general syphilis; local measures are useless, and no treatment called for until the general eruption appears (Keyes). [Compare CHANCROID, SYPHILIS.]

Bunion.

Iodine, as paint, or **Emplastrum Hydrargyri**, for indolent form, thick but not tender (D). **Rest**, fomentations, and anti-arthritic remedies for thickened bunion; burst it by pressure if recent and sac thin (D). [Compare BURSITIS.]

Burns and Scalds.

Carbolic Acid, 1 part to 30 of Linim. Calcis, or 1 part to 6 of Olive Oil; the latter speedily relieves pain, and promotes healing without suppuration (Wa); 1 part to 10 of Olive Oil, applied on layers of cotton batting, the best application for burns of all degrees. **Boracic Acid**, a saturated watery solution, used with great success (Lister). **Lead Carbonate**, white lead paint, an excellent application to burns of small extent (B). **Salicylic Acid**, ʒj to ℥viij Ol. Olivæ, is an efficient local application (B). **Collodion**, flexible, to burns of first degree (R. P). **Phytolacca**, relieves pain (B). **Lime**, as Lime-water and Oil, equal parts (R); or Lime-water with Linseed Oil, a favorite application (P). **Rhus**

Toxicoden., the tinct. externally, ʒj to the pint of water in superficial but extensive burns (P). **Cantharis**, the tincture diluted with 40 of water and applied on rags, is a most excellent application. **Sodium Carbonate** in solution as lotion, immediately relieves pain and promotes rapid healing. **Turpentine**, in dangerous cases, where great constitutional depression (P); as wash to severe burns, then locally Basilicon Ointment mixed with Turpentine (B). **Cotton-wool**, to allay pain and exclude air (P). **Warm Bath**, immerse for some days (R); exclusion of air the main indication (H). **Pinus Canadensis**, the concentrated extract, painted on freely, relieves the pain effectually.

Prescriptions.

Lime and Linseed.

℞. Olei Lini, ... ℥vij.
Aquæ Calcis, ... ℥viij.
M. Sig.—Apply on sheet lint, and cover with oiled silk.

℞. Sodii Carbonatis, ... ℥vj.
Aquæ, ... Oiij.
M. Sig.—Apply freely for 3 days on old cloths or lint.

℞. Iodoformi, ... ℥j.
Cetacei, ... ʒj.
Ext. Conii Alcohol, . . . gr. xl.
Acidi Carbolici, ... gtt. x.
M. Sig.—Spread on lint and cover the parts therewith.

℞. Pulv. Carbonis Ligni, . . ℥viij.
Sig.—To be dusted thickly over the burned parts.

Bursitis.

Iodine, painted on outside, after removal of fluid from aspirator (D); after blistering (Wa). **Blisters**, in rheumatic enlargement of bursæ, are almost indispensable for a rapid cure (Wa). **Fomentations**, with rest, to relieve pain and swelling; if unavailing, a crucial incision into the bursa, care being taken not to open the capsule of the knee (D). **Excision**, when chronic, tumor hard, resisting other measures (C).

Cachexiæ.

Calcium Phosphate, in scrofulous affections and anæmia (Wa); in phthisis, and affections marked by mal-nutrition (B). **Iron**, in splenic, syphilitic, and strumous, and especially in all anæmic states; also in the malarial and phthisical; chalybeate waters (B). The Ammonio-citrate the best tonic in the cachexia of gastric ulcers, especially in chlorotic females (Wa). **Arsenic**, a prompt remedy in the malarial cachexia; also in the cancerous of real value (Wa). **Hydrastine**, in paludal and splenic cachexiæ, stands in high esteem (B). **Nitric Acid**, is adapted to the cachexia following acute diseases or intemperance; also as alterative after long course of Mercury (Wa). **Potassium Iodide**, in constitutional syphilis, and resulting affections of bones and skin (Wa). **Mercury**, in the syphilitic, but its utility much questioned (Wa). **Aurum**, in cancerous, mercurial, and syphilitic cachexiæ, especially when bones, glands, and oculo-nasal mucous membrane affected. **Phosphates**, in bone diseases, wasting, bronchitic, leucorrhœic, etc. (B). **Arnica**, in very developed cachexiæ, has excitant action on the nervous system (Wa). **Eucalyptus**, a serviceable tonic and stimulant in cachectic states generally (B). **Manganese**, the Syrup of Ferrous and Manganese Iodide in anæmic, syphilitic, strumous, malarial, cancerous, etc. (B). **Grape-cure**, often modifies most happily many conditions (P). **Air**, in good condition, an important element (B). **Water**, the Turkish bath and wet pack as aids to remedial action, in plumbic, mercurial and paludal (B). **Oils and Fats**, to promote constructive metamorphosis in many cachexiæ, especially cod-liver oil (B); the latter a most valuable remedy in scrofula, phthisis, atrophy, tubercular and jail cachexiæ, anæmia, etc. (Wa). **Massage**, has been productive of remarkable results in many forms of cachexiæ (B). **Aliment**, of prime importance (B). [Compare the titles ANÆMIA, SCROFULA, SYPHILIS, etc., and the Formulæ for Tonics, on pages 507 and 511, *ante*.]

Calculi, Biliary.

Chloroform, is supposed by some to act as a solvent in 20 to 60-drop doses every 3 or 4 hours; it cannot act as a solvent, but undoubtedly affords some relief (B); as an inhalation it may be used to relieve the pain of the paroxysm (Br). **Ether and Turpentine**, equal parts of each, ʒj once daily for a year, is Durande's solvent remedy; is not solvent, and as an anodyne inferior to morphine or chloral (B). **Morphine**, gr. ¼ with **Atropine**, gr. $\frac{1}{120}$, hypodermically, the best anodyne for the pain and vomiting during the paroxysm (Br). **Chloral**, sometimes relieves the pain (R). **Counter-irritants**, as mustard poultices to relieve the pain during the paroxysm (Br). **Olive Oil**, ℥ij at night, followed next morning by 3 or 4 seidlitz powders an hour apart, efficient in facilitating the expulsion of accumulated gall-stones. **Nitro-muriatic Acid**, as bath, found useful in India to relieve the pain and promote expulsion of the calculus, ℥iij of the acid to a gallon of water (Scott). **Sodium Phosphate**, in ʒ-dose before each meal for several months, to prevent recurrence (B); should be given in plenty of water (Br). **Sodium Salicylate**, increases the secretion of bile and renders it more watery; it is therefore indicated in cases where there is a tendency to the formation of gall-stones (Br). **Succinate of the Peroxide of Iron**, hydrated, contains a large proportion of nascent oxygen, and is given in teaspoonful doses after meals for several months, and resumed at intervals afterwards to prevent reformation of the calculi (Buckler). **Diet**, is important; withhold all starches, sugars and fats, also malt liquors and spirits; moderate exercise out of doors, lean meats, eggs, fish, fruits and succulent vegetables to be used freely. **Mineral Waters**, the alkaline are useful, especially Vichy, which is deemed of great benefit. [Compare COLIC, JAUNDICE.]

Prescriptions.

℞. Succinat. Hydrat. Ferri Peroxidi, ... ℥jss.
Aquæ, ... ℥vjss.
M. Sig.—Teasp. after each meal for several months.

℞. Spt. Etheris Comp., . . . ʒij.
Liq. Magendie, ... ♏xxx.
Syr. Zingiberis, . . . *ad* ℥j.
M. Sig.—Teasp. doses, an hour apart, until pain is relieved.

Calculi, Renal and Vesical.

Alkalies, especially Potassium salts, if long continued will effect solution of uric acid calculi (R); Sodium salts should not be used (B). **Potassium Citrate**, in large doses for bloody urine containing uric acid crystals (R); the Citrate and Carbonate are the most desirable solvents for uric acid gravel (Sir H. Thompson). **Potassium Tartra-borate**, if long used, is very efficient as a solvent for uric acid calculi (B). **Potassium Salts**, are much more efficient than those of Lithium as solvents for uric acid (Rogers). **Alkaline Mineral Waters**, those rich in Potassium preferred, especially Vichy (B). **Ammonium Benzoate**, long-continued, will dissolve phosphatic calculi (B). **Ammonium Biborate**, will prevent attacks of colic where uric-acid calculi, in 20 grain doses every two hours until free urination, then gr. xv thrice daily in a glass of flax-seed tea. **Magnesium Boro-citrate**, is a good solvent of uric acid calculi (Madsen). **Lithium Citrate**, to promote oxidation (Da C). **Hydrangea**, in decoction, used by the Cherokees in all calculous affections with uniform success (Butler). **Lead Acetate**, gr. ½ to the ℥ of distilled water, injected into the bladder to prevent formation of phosphatic calculi, or a solution of **Dilute HCl Acid**, ♏ ij–iij to the ℥ (Sir H. Thompson). **Nitric Acid**, very dilute, as injection for phosphatic calculi (R); gtt. j to the ℥, as injection into the bladder in chronic cystitis and phosphatic deposits (B). **Cotton-root**, in decoction, as a demulcent for strangury and gravel (P). **Castor Oil**, of value as a purgative (P). **Calumba**, to relieve the vomiting (P). **Counter-irritants**, as mustard-poultices, or turpentine stupes, to relieve the pain of the paroxysm (R). **Anæsthetics**, for the same purpose (B). **Morphine**, hypodermically, as an anodyne and to relieve the vomiting (B). **Hot Fomentations**, to alleviate spasm and pain while calculus is passing. **Diet.** Restrict the use of sugar in any form or combination, also fats and alcoholic beverages. Fresh, green vegetables may be used freely, also skimmed milk or buttermilk. Mineral waters, preferably Vichy, Friedrichshall and Carlsbad. Frequent abstinence from animal food. Lemon-juice and soft water in large draughts, are useful. **Surgical Measures.** Lithotomy or Lithotrity for removal of a stone from bladder. Solvents are of no use except for a very small calculus, and even then a considerable time must be occupied in the process. No operation in surgery more certainly safe, rapid and successful than lithotrity (Sir H. Thompson). [Compare COLIC, LITHIASIS, OXALURIA, etc.]

Prescriptions.

Magnesium Boro-citrate.

℞. Magnesii Carbonat., . . . ʒj.
Sodii Biborat.,
Acidi Citrici, ... aa ʒij.
Aquæ Bullientis, ... ℥viij.
M. Sig.—Tablespoonful 3 or 4 times daily. (B.)

Potassium Tartra-borate.

℞. Potassii Bitartratis, . . . partes iv.
Ac. Borici, ... partem j.
Aquæ, ... partes x.

By heating the above together, the salt is obtained as a white powder, of which gr. xx in a large draught of water 3 or 4 times daily.

Cancer.

Arsenic, in cancer of the stomach, diminishes pain and checks vomiting; also in scirrhus of stomach and epithelioma; is believed to retard the growth of uterine cancer (Br). Arsenous acid, pure or with starch, as a caustic; enough should be used to set up active inflammation (R); may cause arsenical poisoning by absorption. **Belladonna**, locally and internally (♏v–x), of great benefit as palliative in severe pains of cancer (P). **Conium**, as poultice, and internally to relieve pain (R); is particularly applicable to pain of cancer (P); as palliative (Wa). **Hydrastis**, has a renewed interest (Pf). **Carbolic Acid**, undiluted, to sore, and injected beneath it, limits and retards (B); pure, as anæsthetic, before applying caustics; with glycerin, as application to fetid cancers (R). **Mercuric Chloride**, in small doses, long-continued, will retard the growth of gastric cancer (DaC). **Citric Acid**, ʒj to ℥viij aquæ, useful in allaying pain of cancerous ulcerations (Wa). **Acetic Acid**, 1 to 3 aquæ; ♏xxx injected into the tumor, has been used with varying success (Wa). **Chloral**, in 10 gr. doses, 3 times a day, has relieved the most severe pain of cancer (R). **Chloroform**, as vapor to raw surface (R). **Pyoctanin** (Methyl Violet) in solution, by injection into the neoplasm, to bring about the shrivelling up and final disappearance of carcinoma (Mosetig). **Hyoscyamus**, bruised leaves, locally (P). **Bismuth**, relieves pain and vomiting of gastric cancer (B). **Glycerite of Tannin**, with Glycerite of Carbolic Acid, checks discharge and stench of uterine cancer (R). **Carbonic Acid**, injected up vagina in cancer of uterus, to relieve pain (R). **Iodoform**, applied to diseased surface, relieves pain and removes fetid odor (P). **Resorcin**, 15 parts to 20 of Vaselin as an ointment twice daily after washing with a solution of Pot. Permanganate, has successfully stopped epithelioma (Antonio). **Potassium Chlorate**, in impalpable powder, dusted on epithelioma, said to be curative (B). **Pepsin**, injections into tumor (B). **Salicylic Acid**, pure, applied in powder (B). **Zinc Chloride**, the most efficient and safe escharotic; parts j–ij to v of flour, as "caustic arrows" inserted at base of tumor (B). **Potassa Fusa**, as escharotic (B). **Opium**, to cancerous sores. Morphine, dissolved in glycerin, and spread on lint, very useful where there is much pain. Opium is also used in cancer of the stomach (R). Codeine (gr. $\frac{1}{15}$ to $\frac{1}{10}$), a good hypnotic (P). **Zinc Sulphate**, dusted over, dry; an excellent caustic. Remove the eschar by poultice (B). **Bromine**, for destruction of uterine cancer, is preferred by some (B). **Chromic Acid**, a powerful escharotic (B). **Calcium Carbonate**, as calcined oyster-shell, very efficient in arresting growth of cancerous tumors, and in alleviating the pain thereof

(Hood). **Rumex Acetosa,** an excellent local application; has a popular reputation. **Iron and Manganese,** the Syrup of the Iodide, for resulting cachectic state (B). **Poultices,** of starch, applied cold (R); or poultices of bread, sprinkled with charcoal or freshly ground coffee, as deodorizers to open cancers. **Water Enemata,** to relieve pain and straining in intestinal cancer (R). **Electrolysis,** has been of great service in many cases, relieving the pain, and diminishing the tumor. In a case of sarcoma of the thigh, in which amputation was the only possible resource, after one application of the needles by Mr. Annandale, the pain was relieved and the tumor diminished (Duncan). It seems proved that there is a less frequent return of cancerous growths removed by electrolysis than by the ordinary procedures; the evidence in its favor has recently accumulated (Tibbits). In any case in which operative interference is necessary, electrolysis is the preferable method, and in others is advisable (Butler). In 18 cases of epithelioma treated by electrolysis, 13 were cured, 2 improved, in 2 there were no results, and 1 ended fatally (Groh).

Cancrum Oris.

Arsenic, in medicinal doses (R). **Nitric Acid,** to surface (R); strong Nitric Acid the best caustic for worst forms of the disease (Wa). **Potassium Chlorate,** gr. xx–xl in 24 hours, has been strongly recommended (D). **Quinine,** made into a syrup, or as enema, to support the strength (Wa). [Compare APHTHÆ, STOMATITIS.]

Carbuncle.

Boric Acid, administered internally and externally as for Boils (which see); equally efficacious in carbuncle, diminishing pain, redness and hardness; numerous apertures rapidly form for the elimination of the core; the fever falls, excitation and insomnia abate, and the carbuncle heals, in the majority of cases, without surgical interference (Alison). **Mercury,** Corrosive Sublimate, injected into tumor at several points, in doses of 2 drachms of a $\frac{1}{10}$ per cent. solution dividedly, has produced good results. The injections were often repeated, in broken doses likewise, on the following days (Casson). **Belladonna,** with Glycerin, as local application to relieve pain (R. P. Wa). **Ammonium Acetate,** to support the system (Cezard). **Carbolic Acid,** on lint, with Glycerin or Oil, into discharging sinuses (R); or hypodermically into the sloughing tissues. **Iodine,** to produce vesication around carbuncle; reduces inflammation (R); part j of the tincture to iij aquæ, locally, has most striking effect (Wa); may be used with benefit internally or hypodermically (Cezard). **Calcium Sulphide,** gr. $\frac{1}{10}$ hourly, or every two hours, of great service (R). **Opium,** a thick extract, locally (R). **Potassium Chlorate,** highly recommended, also **Quinine and Iron,** freely to support the system and counteract the carbuncular poison. **Poultices,** the inflamed surface having been previously smeared with Belladonna and Glycerin (R). Long-continued poulticing thought to create tendency to a fresh crop. **Strapping,** with plaster, concentrically from border inwards, leaving the centre free, will sometimes arrest extension (R). **Collodion,** as protective covering (P); as zone around base, leaving the centre exposed (Wa). Collodium cum Cantharide in a broad zone painted around the carbuncle, to relieve the tension (Ag). **Ice,** or **Ice-bags** or iced water on cloths in early stage, changing to warm fomentations as soon as suppuration has begun (Hebra). **Galbanum and Opium** as plaster to relieve pain, the separation of the core then proceeding painlessly (Hill). **Crucial Incisions** are not so frequently made now as formerly; they relieve tension but often give rise to severe hemorrhage. **Diet** should be very supporting, and stimulants may be used freely when the patient is debilitated. Saline purges occasionally (Hill). **Cauterization,** with fuming Nitric or Carbolic Acid, on top of a free crucial incision, followed by dressing with Carbolized Oil, is the course to pursue in malignant pustule. **Caustic Potash,** applied before an opening occurs, or small pieces inserted into openings made by scalpel, to cause the rapid separation of the slough. The resulting ulcer should be treated on general principles. [Compare BOILS, PUSTULE MALIGNANT.]

Prescriptions.

℞. Calcis Sulphurat., ... gr. iij.
Sacchari Lactis, ... q. s.
Triturat. et div. in chart. xxx.

Sig.—One powder every 2 hours, to be taken dry on the tongue.

℞. Tinct. Ferri Chloridi, . . ℥j.
Potass. Chlorat., ... ʒiij.
Liq. Ammonii Acetat., . . ℥iij.
Syrupi et Aquæ, . q. s. ad ℥viij.
M. Sig.—Dessertsp. every 2 hours.

Caries.

Aurum, in syphiloma of bones (B). **Calcium Chloride**, where strumous cachexia (B). **Phosphoric Acid**, with 8 parts water, locally applied, has been of benefit (Wa). **Phosphates**, best is Syrup of Calcium Lacto-phosphate, or Parrish's phosphates (R). **Villate's Solution**, to dissolve the carious bone, has cured many cases (B). [See formula below]. **Sarsaparilla**, a very useful medicine (P). **Iodine**, locally, with Iron or Cod-liver Oil internally (Wa). [See BONE.] **Potassium Iodide**, in syphilitic caries, holds the first place (Wa). **Cod-liver Oil**, to promote constructive metamorphosis (R). **Mechanical Contrivances**, necessary in most cases; Sayre's plaster jacket, Agnew's jacket of leather and steel, Taylor's apparatus, etc., are used in spinal caries to separate the diseased bones, and extend the spinal column. [Compare NECROSIS.]

Prescriptions.

Villate's Solution.

℞. Cupri Sulphat.,
Zinci Sulphat., āā partes xv.
Liq. Plumbi Subacetat., p. xxx.
Aceti, ... p. cc.
To be injected through the sinuses.

℞. Syrupi Calcii Lacto-phosphatis (U. S. P.), . . . ℥viij.
Sig.—A dessertsp. tò a tablesp. 3 or 4 times daily.

Catalepsy.

Turpentine, in enemas, and embrocations along the spine, affords the best chance of stopping the paroxysms (Wa). **Treatment** must be essentially tonic and restorative (H). No constant line can be stated (A); external stimulation to arouse consciousness, by Ammonia, cold douches, Faradism, etc. **Apomorphine**, gr. $\frac{1}{20}$ to $\frac{1}{12}$, in the paroxysm; with the onset of nausea, consciousness returns and spasm ceases; in the intervals between the attacks the treatment should be that of hysteria (Gowers).

Cataract.

Phosphorus, with Oil, by frictions to the forehead, and instillation of the same into the eye, may cause absorption of the lens or capsule (Wa). **Codeine**, in diabetic cases (Br). **Sodium Sulphate**, a solution suggested as injection into anterior chamber, in hope to dissolve the nebula (Wa). **Galvanism**, has been successfully employed in incipient stage (Wa). **Mydriatics**, Atropine, Duboisine, etc., to secure full dilatation of pupil, as a means of ascertaining when the operation should be made, which is when the cataract is mature, there being no vision even with dilated pupil (Wa). **Diet and Regimen**, may do much to retard degeneration of the lens, in cases due to diabetes, or malassimilation in gouty or rheumatic persons (C). **Iridectomy**, made early and effectually may postpone the progress of lenticular opacity, if due to increased intraocular tension (C). In partial cataracts, which have become stationary, iridectomy for artificial pupil may be done to expose clear portion of lens (Roosa). **Medi-**

cine, accomplishes nothing except to improve general health and so delay the progress of the opacity. Removal may be performed by one of several operations (Roosa).

Catarrh, Acute Nasal.

Sodium Salicylate, to abort a cold (see *ante*, page 373). **Aconite**, in severe coryza with much chilliness, aching limbs, hot and dry skin, and quick pulse; also in catarrhs of children and that accompanying measles (R); in acute coryza (P); with Belladonna in ordinary colds with sore throat and high fever (B); in doses of ♏ ⅓ every ¼ hour, very useful for a commencing cold in the head (Smith). **Belladonna**, in acute nasal catarrh with profuse watery secretion, ♏ v of tincture, then ♏ j each hour (B). **Nux Vomica**, has great effect upon a dry cold in the head (P). **Euphrasia**, is of decided utility in coryza (P). **Pulsatilla**, a warm lotion, ʒj–ij in ℥iv aquæ, syringed into the nasal passages in subacute coryza with muco-purulent secretion (P); acts similarly to Aconite, but is contraindicated if much gastric or intestinal irritation exists (B). **Iodine**, by inhalation in daily attacks with itching nose (R): ʒij of the tincture with ʒj of Carbolic Acid inhaled from sponge in the bottom of a wide-mouthed bottle placed in hot water (B). **Iodides**, are unquestionably serviceable, their action being local and substitutive; Ammonium Iodide, gr. j every two hours, the best mode of using them (B). **Sodium Iodide**, gr. x ter die, with Pil Ferri Iodidi, in catarrhs of specific origin (B). **Potassium Iodide**, gr. x at bedtime at the onset, to cut short an acute cold in the head; also useful in chronic colds (R). **Arsenic Iodide** is very efficient as a remedy for an acute cold, coryza, and similar affections, especially when accompanied by a sore throat resembling that of diphtheria; gr. iij triturated with gr. xx of sugar of milk, one-half of which may be dissolved in ℥iv of water, and a teasp. given every hour or so. **Arsenic**, when sneezing, itching of nostrils and frontal headache (R); as cigarettes (B). [See under ASTHMA, for formula.] **Veratrum Viride**, if Arsenic fails (R). **Quinine**, gr. x, with **Morphine**, gr. ⅙, at incipiency, will often abort an acute coryza (B). **Opium**, at night, if taken early in the case, will often abort an attack of coryza; a glass of hot grog assists its action (R); Dover's powder in a full dose at the onset may abort (B). **Codeine**, is useful in common colds, as a palliative (B). **Ammonia**, may be inhaled in the early stage (R). **Potassium Chlorate**, 8 or 10 lozenges a day will abort many a cold (R). **Camphor**, as inhalation, the spirit in form of vapor (R); with Opium and Ammonium Carbonate as powder (see formula below), to break up or modify a cold (Beard). **Tartar Emetic**, gr. $\frac{1}{20}$ to $\frac{1}{12}$ in the first stage (B); in acute catarrh of children often accompanied by vomiting and diarrhœa (R). **Ipecacuanha**, for acute nasal and bronchial catarrh, and ordinary colds in children (B). **Cimicifuga**, when headache, stiff muscles, dull aches, bone-pains, etc. (R); an excellent expectorant (B); rheumatic colds; neuralgic pains in jaw (P). **Jaborandi**, the fluid extract in doses of ♏x to xxx, every half hour until profuse diaphoresis sets in, is one of the best modes of aborting a cold; or **Pilocarpine Hydrochlorate**, gr. ⅙ in water at bed-time, will give prompt relief, and cure in a few days (Wyss) **Cocaine**, a 4 or 5 per cent solution locally as spray, to empty the engorged venous sinuses of the nasal mucous membrane, by their contraction, which it induces. The fluid extract of Coca diluted with water is equally efficient if enough be used (Cohen). **Resorcin**, the best of all applications. (See CATARRH, CHRONIC.) **Cubeb**, or **Ammonium Chloride**, in the dry, congestive stage of a cold in the head; Cubeb cigarettes may be smoked as a temporary palliative with great relief. **Sulphurous Acid**, in coryza, by inhalation, spray or fumigation, is very efficient (R). **Oil Inunctions**, daily to the whole body, in cases of undue susceptibility to taking cold, will prevent the frequency of the attack (B). **Baths**, a warm foot-bath before going to bed; Turkish bath, at onset in coryza, may prove abortive; also useful later on. Cold sponge-bath in cases of extreme susceptibility, supplemented by occasional Turkish baths (R). [Compare COUGH, HAY-FEVER, INFLUENZA.]

Prescriptions.

℞. Quininæ Sulph., ... gr. xviij.
Liq. Arsenicalis (B. P.), . ♏ xij.
Liq. Atropinæ (B. P.), . . ♏ j.
Ext. Gentianæ, ... gr. xx.
Pulv. Acaciæ, ... q. s.
Ft. pil. no. xij. Sig.—One every 3, 4 or six hours, for acute colds. (*Whalen.*)

℞. Camphoræ, ... gr. l.
Ætheris, ... q. s.
Dissolve to creamy consistence, then add—
Ammonii Carbonat., . . . gr. xl.
Pulv. Opii, ... gr. x.
Divide into thirty papers.
One or two powders, according to age, twice or thrice daily. (*Beard.*)

℞. Acidi Carbolici, ... gr. lxxx.
Alcoholis, ... ℥ ss.
Aq. Ammoniæ, ... ♏ lxxx.
Aquæ, ... ʒ ijss.
M. Sig.—A few drops as an inhalation from a cone of blotting paper. (*Brand.*)

℞. Morph. Acetat., ... gr. iv.
Bism. Subnitrat.,
Pulv. Talci, ... āā ʒj.
Ft. Chartulas no. xxx.
Sig.—Use as snuff in acute rhinitis. (*Sajous.*)

℞. Codeinæ, ... gr. ij.
Syrupi Tolutani,
Syr. Scillæ Comp., . . . āā ℥ j.
M. Sig.—Teaspoonful occasionally for a common cold. (B.)

℞. Tinct. Aconiti, ... ♏ x.
Tinct. Belladonnæ, . . . ʒ ss.
Syrupi Zingiberis, . . . *ad* ℥ ij.
M. Sig.—Half to one teasp. according to age, every hour.

Ferrier's Snuff.

℞. Morph. Hydrochlor., . . . gr. ij.
Bismuthi Subnit., ... ʒ vj.
Pulv. Acaciæ, ... ʒij.
M. Sig.—Use as snuff, ¼ to ½ the above in 24 hours.

Catarrh, Chronic Nasal.

Sanguinaria, the tincture in 10-drop doses thrice daily, or gr. $\frac{1}{15}$ of the alkaloid, internally, and the powder in small quantity locally to the mucous membrane, is successful treatment for chronic nasal catarrh (B). **Glycozone**, frequently applied, is of benefit in chronic coryza (Edson). **Hydrastis**, is of value in chronic coryza, also in ulceration of the septum or any other part of the nasal fossæ, gtt. v of the tincture thrice daily internally, and ʒj to ℥viij of water locally with syringe (P). **Pulsatilla**, is excellent in subacute inflammation of nasal passages, with offensive muco-purulent discharge, ʒj-ij ad ℥iv of water, as wash (P). **Potassium Bichromate**, is an excellent local application in a solution of gr. j–x to ℥iv water (B). **Iodoform and Tannin**, 1 of the former to 2 or 3 of the latter, carefully triturated, and applied by an insufflator every other day only, is the very best of all applications (B). **Sodium Chloride or Phosphate**, a teasp. to the pint of warm water as cleansing solution, or the **Bicarbonate**, in the same proportion. A sea-water gargle in the naso-pharyngeal space, has been used with success (Mosler). Wei de Meyer's Catarrh Cure is simple Sodium Bicarbonate and a little pink coloring matter (Robinson). **Potassium Permanganate**, gr. j–x to the pint of warm water, as a deodorant solution when necessary. **Ammonia**, by inhalation, when painful inflammation of nasal mucous membrane and frontal bones (R). **Carbolic Acid**, a 1 per cent. solution as spray, or inhalations of the vapor with that of Iodine from a bottle in hot water, or vaporized by the warmth of the hand (B). **Salicylic Acid**, in weak solution, 1 to 500 of water, as a disinfectant and astringent injection, used with a retro-pharyngeal syringe, and followed by applications of powdered **Calomel**, through a speculum, upon the ulcerated parts of the mucous membrane (Massei). **Cubeb**, finely powdered and blown into the nares by an insufflator (B), has proven very useful (P); may be smoked, and administered internally in teasp. doses (Wa); in freshly ground powder as a confection, (see below for formula), very efficient in follicular disease of the naso-pharyngeal space (Robinson). **Ammoniacum**, in the same condition, very small doses, gr. j–iij, with Ipecac or Ammonium Carbonate, will greatly lessen the amount of secretion (Robinson). **Bismuth**, in powder, with Acacia, as in Ferrier's snuff (see above for formula), or with Tannin, Calomel, Iodoform, etc., used by insufflation, daily (Robinson). **Aurum Chloride**, in mercurialized and syphilitic subjects, with offensive discharge, depressed spirits and soreness of the nasal bones. **Iodides**, of Iron and Sodium, in catarrh of specific origin (B). **Silver Nitrate**, in powder, as alterative application, gr. x–xv to the ℥ of menstruum, is often a useful adjunct to treatment, used once every 4 or 5 days (Robinson). **Cod-liver Oil**, should be used in strumous subjects (R). **Alum**, in powder, dusted over the affected surface, is a useful application (B). **Resorcin**, the best of all applications, in acute and chronic catarrh. After cleansing the nose with a Boracic Acid solution, or Dobell's, use a 2 to 10 per cent. ointment (in Vaselin), also a spray every other day, of a 2 to 4 per cent. solution. It gives the same results as Cocaine, but is slower in action and more lasting, and does not suppress the normal function of the mucous membrane, as the latter does. **Eucalyptus**, has been employed with benefit (Wa). **Bromine**, the vapor may greatly benefit, but must be used with caution (B). **Senega** has been found serviceable (Wa). **Douche** is dangerous, being likely to cause extension of the catarrh to the Eustachian tube and the middle ear. It has been very generally abandoned. **Sprays** by hand-ball atomizers, or compressed air apparatus, of warm watery solutions, Vaselin, etc., are used with considerable success (Cohen). The Hank's atomizing tubes, with a 2-ball rubber syringe, are very serviceable for office use, and for the application of Rumbold's hot Vaselin spray. [See formula below.] **Sulphur Waters**, internally, of great benefit in follicular disease (Robinson). [Compare OZÆNA.]

Prescriptions.

℞. Acidi Carbolici, ... ♏ x.
Glycerini, ... ʒ ij.
Vaselini, ... ℥ ij.
M. Sig.—Warm and use as a spray every 4 hours. (*Rumbold.*)

℞. Pulv. Argenti Nitrat., . . . gr. vij.
Pulv. Acaciæ, ... ʒ j.
Bismuthi Subnitrat, . . . ʒ iij.
Triturat. Sig.—Apply with insufflator once in 4 or 5 days. (*Robinson.*)

℞. Acidi Carbolici, ... ♏ xl.
Sodii Boratis,
Sodii Bicarbonat, . . . āā ʒ ij.
Glycerini, ... ʒ vij.
Aquæ, ... q. s. *ad* ℥ viij.
M. Sig.—Use daily as spray.
(*Dobell.*)

℞. Bismuthi Subcarb.,
Pulv. Acaciæ, ... āā ʒ ss.
Zinci Sulphat., ... gr. x.
Morph. Sulphat., ... gr. ij.
M. Sig.—Snuff, to be used thrice daily.
(*Sajous.*)

℞. Pulv. Cubebæ, ... ℥ ij.
Syr. Aurantii, ... ℥ iij.
Aq. Menth. Pip., ... ℥ ij.
Aquæ,. . . . . . q. s. *ad* ℥ viij.
Ft. mistura. Sig.—A teaspoonful every 3 or 4 hours. (*Robinson.*)

℞. Bismuthi Subcarb., ... ʒ vj.
Morph. Muriatis, ... gr. ij.
Pulv. Amyli, ... ʒ ij.
Triturat. Sig.—Burness' modification of Ferrier's snuff.

℞. Sodii Iodidi, ... ℥ ss.
Syrupi Picis Liq., ... ℥ vj.
M. Sig.—Dessertsp. thrice daily with Pil. Ferri Iodidi (U. S.) one thrice daily, in chronic nasal catarrh of specific origin.
(B.)

℞. Sodii Boro-benzoatis, . . . ℥ j.
Ext. Hydrastis Fl., ... ʒ j.
Glycerini, ... ʒ j.
Ac. Carbolici, ... ♏ xx.
Aquæ Camphoræ, ... ℥ vj.
Aquæ, ... q. s. *ad* ℥ xij.
M. Sig.—Use with syringe or atomizer thrice daily. (*Chamberlain.*)

℞. Acidi Carbol., ... gtt. xv.
Extr. Hydrastis Fl., ... ʒ j.
Sodii Bicarb.,
Sodii Biborat., ... āā ʒ j.
Glycerini,. . . . . ℥ j.
Aquæ Camphoræ, . . . *ad* ℥ viij.
M. Sig.—Use with posterior nasal sprayer.

℞. Sodii Salicylatis, ... ʒ ij.
Sodii Boratis, ... ʒ iij.
Glycerini, ... ℥ ss.
Aquæ, ... q. s. *ad* ℥ vj.
M. Sig.—Of this put a dessertspoonful into a pint of warm water, and snuff it from the hollow of the hand thrice daily.
(*Sajous.*)

℞. Ext. Pini Canad., ... ♏ xx.
Glycerini, ... ♏ xxx.
Aquæ, ... Oj.
M. Sig.—Use with post-nasal syringe.

Cerebral Anæmia.

Iron, the Tincture of the Chloride, or mild chalybeate waters, in chronic cases from general anæmia (B). **Amyl Nitrite,** in vaso-motor spasm ; affords relief in sudden attack (B). **Chloral,** in small doses with stimulants, warm baths (Ros). **Camphor,** or other cerebral excitants, as Asafœtida, Valerian, Serpentaria (B). The Mono-bromide in one to five-grain doses (Hammond). **Glonoinum,** ♏j of a 1 per cent. solution (P). **Phosphorus,** supplies the needed material for healthy brain action (B). **Strychnine,** stimulates the circulation generally; with Iron preparations as a tonic. **Galvanism,** a mild current transversely through the head, gives excellent results in the confusion of mind, vertigo, etc., due to imperfect nutrition of the brain from atheroma of the cerebral vessels (B). **Arsenic,** is highly efficient in some hypochondriacal cases (B). **Aurum,** is of great utility in vertigo, melancholia, etc., when due to or accompanied by cerebral anæmia (B). [Compare INSOMNIA.]

Cerebral Concussion.

Arnica, when from a fall, cannot be too highly spoken of (P). **Warmth,** to extremities, rest, expectant treatment, will suffice in mild cases (Ag). The indications are: (1) to recover from insensibility and collapse; (2) to prevent inflammation; (3) to restore impaired faculties (D). **Stimulants** or **Venesection,** cannot be too strongly reprobated (Ag).

Cerebral Congestion.

Aconite, in active form, renders important service (B); is much the best remedy in this condition (P). **Belladonna** one of the best remedies in all hyperæmic conditions of the brain or spinal cord (P). **Gelsemium,** ♏v of the fluid extract every two hours, very useful (B). **Bromides,** are very useful (B); must be used in full doses. **Colocynth,** as counter-irritant, appears to act well (P). **Cathartics,** lessen blood-pressure (B). **Colchicum,** in plethoric subjects (B). **Galvanism,** of brain and cervical sympathetics (B). **Chloral,** when temperature high (B). **Arsenic,** sluggish venous circulation, torpor (B). **Hydrocyanic Acid,** ♏ij–v of Scheele's dilute acid (B). **Venesection,** will prevent injury to brain. Not to be adopted as a matter of course; is contraindicted when anæmia, aortic valvular disease, or in cases commencing with syncope (A). **Water,** cold douche to head, feet in warm water; ice and hot water alternately to head and nape of neck, often more effective than ice alone (B). Hot water to head on flannels; mustard and hot water packing for 20 to 30 minutes, around legs, when active congestion; protect bowels well (R). **Diet,** should be low, but not too low, until all fear of relapse past; full animal diet should be avoided, also undiluted wines (A). [Compare APOPLEXY, COMA.]

Cerebral Softening.

Venesection, and antiphlogistic treatment generally, most beneficial in red softening, result of inflammation; require wise discretion, and should be used early. Not to be thought of in the yellow form, from want of nutrition; where restoratives and food are needed, perhaps wine (A). **Phosphorus,** in threatened softening of the brain; is the only drug which affects the nerve centers (W).

Chancre.

Mercury, small doses steadily, but ptyalism must not be induced. Blackwash (Calomel gr. viij, Aq. Calcis ℥j), or yellow-wash (Hydr. Chlor. Corr. gr. j, Aq. Calcis ℥j) on lint, to erosions and ulcerated indurations (B). Calomel alone as dry dressing. Internal use of Mercury best postponed until secondary symptoms appear (St). **Carbolic Acid**, as wet dressing, gr. ij of crystals to ℥iv aquæ ter die (St). **Iodoform**, heads the list of dry dressings; with Lycopodium, equal parts, or 1 to 2 of Zinc Oxide; 2 to 1 of Calomel (St). **Hydrogen Dioxide**, said to destroy the specific character. Wash lesions thrice daily, and apply lint soaked in it (R). **Caustics**, should never be used unless chancre attacked by phagedena (St). **Caustic Alkalies**, to hard edges (R). **Bromine, Chromic Acid**, are the best escharotics (B). **Dressings**, are effective as far as the local trouble is concerned, in the majority of cases; sometimes a piece of lint on the erosion will suffice. Never cauterize an initial lesion unless it is attacked by phagedena (St). **Cleanliness** of great importance; tepid water locally frequently suffices for the outward treatment of infecting chancre. [Compare SYPHILIS.]

Chancroid.

Mercury, the Acid Nitrate one of the best caustics; apply with a glass rod (B). **Nitric Acid**, fuming, as caustic (B. R); ʒj to ℥viij aquæ is an excellent dressing (St). **Carbolic Acid**, injected into sore (B); ʒij–v to Oj aquæ locally in phagedena (St). **Ferri et Potassii Tartras**, the born enemy of phagedena (Ricord); ℥j to ℥vj aquæ, internally, teasp. doses thrice daily; also locally (St). **Ferrous Iodide**, in sloughing phagedena, or simple chancroid in debilitated constitutions (B). **Iodoform**, powdered and dusted over the sore, allays pain, changes morbid action, and is antiseptic (R); 1 part to 2 of Lycopodium, or one of Tannic Acid; as stimulant and alterative (St). Does no good except to relieve pain (Gross). **Potassium Chlorate**, in impalpable powder, is better than Iodoform (B). **Chloral**, gr. iij ad ℥j aquæ, the best local application to relieve pain (Gross). **Caustics**, in severe cases, the white-hot iron, strong Sulphuric Acid, pure Nitric Acid, pure Carbolic Acid, are effective in the order named (St). [Compare BUBO.]

Chapped Hands and Lips.

Sulphurous Acid, as solution, or by fumigation, will speedily cure (R). **Glycerin**, diluted, or better still, Glycerite of Starch, or with ½ the quantity of Eau de Cologne (R). **Benzoin**, the comp. tinct. 1 part to 4 of Glycerin; an admirable application (P). **Hydrastis**, on compress as lotion (P). **Collodion**, is usefully employed (P). **Carbolic Acid**, 1 to 2 of Glycerin, locally; one application is generally sufficient. **Unguentum Aquæ Rosæ** alone, is often efficient; may be combined with Zinc Oxide.

Prescriptions.

℞. Resinæ, ...	℥j.
Ceræ Albæ, ...	ʒij.
Adipis, ...	℥ij.
Zinci Oxidi, ...	ʒvij.

M. Ft. unguentum.

℞. Cetacei, ...	ʒj.
Glycerini, ...	ʒij.
Ceræ Albæ, ...	gr. xv.
Ol. Amygd. Amaræ, ...	♏iij.

M. Ft. unguentum.

Chest-pains.

Belladonna, as ointment, when tenderness is in the skin (pleurodynia) (R). **Iodine**, as oint. when pain in muscles (myalgia) of chest, they being tender on pressure, while the skin may be pinched without pain (R). **Strychnine**, affords relief in functional irritability of the nervous system, manifested by wandering neuralgic pains (B). **Arnica**, for a stitch in the side. **Bryonia**, when painful catching of breath. **Cimicifuga**, for intercostal rheumatism and pains under the breasts in women.

Chicken-pox.

Aconite, is of great value (B). **Water,** hot and cold baths and packs are of great utility; cold, if hyperpyrexia; cold compress if sore-throat; hot or warm pack when free diaphoresis required (B). **Treatment,** precautionary only required. Avoid exposure to cold and wet; maintain the action of the skin and bowels (H). **Ammonium Acetate,** in diaphoretic and antifebrile mixture. [See FEVER, SIMPLE, for formula.] **Inunction,** with Camphorated Oil, or thin starch, to relieve itching and allay inflammation (P).

Chilblains.

Digitalis, internally and locally, to improve the circulation, and combat the arterial hypo-tension and peripheral vaso-dilatation which is always present in those subject to chilblains (Pilatte). **Caffeine** and **Kola** may sometimes be substituted for Digitalis. **Iodine,** as ointment, the best application (R); the tincture lightly painted over the surface every 3 or 4 days, is particularly serviceable for the itching. Fatty substances, including Vaselin, should never be applied (Pilatte). **Arnica,** is a useful application (Wa). **Carbolic Acid,** with Iodine, as ointment, is a very efficient application for chilblains. **Benzoin,** the tincture in Glycerin, applied after thorough washing in soap and water and drying, the best application. **Sulphurous Acid,** an efficient application; ʒj to ℥iij each of water and glycerin (B); as solution or fumigation (D). **Balsam of Peru,** in ointment for broken chilblains (R). **Capsicum,** tinct. painted over unbroken chilblains (R). **Cajuput Oil,** applied locally (R). **Turpentine,** as wash, then apply Basilicon Ointment, mixed with Turpentine (B). **Ichthyol,** as oint. has been of service. **Thiol,** the dry form, as a dusting powder, is used efficiently. **Alcohol,** as Eau de Cologne, or camphorated, with friction, after careful drying of the hands and feet.

Prescriptions.

℞.	Tinct. Digitalis, ...	ʒjss.
	Thymoli (cryst.), ...	gr. xlv.
	Alcoholis (70° C.),	
	Glycerini, ...	āā ʒxv.
M.	Sig.—For local use.	(*Pilatte.*)

℞.	Tinct. Benzoini, ...	℥ij.
	Olei Lini, ...	ʒiv.
	Ceræ Flavæ, ...	ʒij.
	Glycerini, ...	q. s.
M.	Sig.—Ointment.	(*Reveil.*)

Chlorosis.

Iron, combined with Arsenic or Strychnine. Occasional purgation and active exercise. Also chalybeate waters for blood deficiencies (R). Is not a specific in chlorosis, and acts best in the purest types (Tr); the Iodide, when much torpor of the system, is often speedily efficacious (Wa). **Arsenic,** if Iron fails, or disagrees (B). **Ergot,** in chlorotic amenorrhœa (P). **Manganese,** the saccharated Carbonate of Manganese and Iron (B). **Nux Vomica,** stimulates the blood-making organs, and may be combined with Iron. A very generally useful preparation is the syrup or elixir of Iron, Quinine and Strychnine (B). **Cocculus Indicus,** when amenorrhœa and exhausting leucorrhœa (P). **Hypophosphites,** of Calcium or Sodium (R). **Benzoin,** has been used with advantage (P). **Pepsin,** benefits, especially where digestive derangement (B). **Sulphur,** of great benefit in cases where Iron is of no effect; also to prepare the system for benefit from Iron (Schulz). **Purgation,** is very important, to prevent auto-infection from putrid intestinal decomposition, which is the true cause of this disease (Duclos); absorption of such products tending to impoverish the blood, and produce a "fæcal anæmia" (Sir A. Clark). **Oils and Fats,** as inunctions, after baths, of great benefit (B). **Galvanization,** central, will aid the action of the remedies (B). [Compare ANÆMIA, AMENORRHŒA.]

Prescriptions.

℞. Ferri Arsenatis, ... gr. ij.
Extracti Cinchonæ, . . . gr. xij.
Fiant pil. xij. Sig.—One after each meal. (B.)

℞. Ferri Sulph. Exsiccat., . . gr. xl.
Quininæ Sulphatis, . . . gr. xx.
Strychninæ Sulphat., . . . gr. ss.
Ft. pil. xx. Sig.—One thrice daily.

℞. Pulv. Aloes Socot., . . . gr. v.
Ferri Sulph. Exsiccat., . . gr. xv.
Ol. Tanaceti, *vel*
Ol. Sabinæ, ... gtt. xxx.
Myrrhæ, Croci,
Cantharidis, . . . āā gr. xxx.
Ft. pil. lx. Sig.—Two thrice daily, gradually increased to four.
(*Wallace.*)

Choking.

Potassium Bromide, benefits a curious affection, sometimes found in children who from their birth can swallow solids with ease, but choke at drinks (B). **Oil of Cajuput**, in one case of persistent "choking" sensation in the throat, a few doses removed the symptoms, which had lasted several weeks (Hale).

Cholera Asiatica.

Camphor, a drop or two of the saturated tincture, or gtt. v–x of the spirit with a little Opium every half-hour (B); gtt. iv–vj of strong spirit every ten minutes until symptoms abate, then hourly (R). **Arsenic**, in epidemic cholera; some cases of arsenic poisoning not distinguishable from cholera (B); for the vomiting and in collapse (R). **Copper** salts have been given (R). **Turpentine**, ♏x–xx every two hours, promises to be a remedy of value (Wa). **Chloral**, as injection, the most efficient treatment, especially when Morphine and Atropine are given coincidently (B). **Chloroform**, a few drops frequently repeated, or x–xxx drops of Chlorodyne, of great value (B). **Opium**, ⅒ to ½ gr. Morphine hypodermically in preliminary diarrhœa (P); ⅛ to ¼ gr. of the greatest value even in collapse (R); dangerous if kidney complications exist (P). **Lead**, the Acetate in early stages (R). **Carbolic Acid**, with Iodine, has given good results (B). **Salol**, has done excellent service. **Sulphuric Acid**, the aromatic, with Opium, is very effective (B); two parts of the former with one of Laudanum, of this 5 to 30 drops as per age, is one of the best prophylactics (McClellan). **Strychnine**, as prophylactic during the preliminary diarrhœa, and in epidemic form when nearing collapse (B). **Alcohol**, small doses of iced brandy for vomiting (B). **Spinal Ice-bag**, for cramps (R). **Saline Injections**, into the veins, have been successful in the collapse (B). **Transfusion**, of milk, in the collapse (B). **Absolute Rest**, recumbent posture, no food, ice *ad libitum;* enemata of warm milk; fresh air, friction, and heat to abdomen, legs and feet; stimulants worse than useless.

Prescriptions.

℞. Chloralis Hydrat., ... ʒ iij.
Morphinæ Sulph., ... gr. iv.
Aquæ Laurocerasi, . . . ℥ j.
M. Sig.—Fifteen to twenty drops as injection hypodermically. (B.)

℞. Chloroformi, ... ʒ j.
Tinct. Opii,
Spt. Camphoræ,
Tinct. Capsici, . . . āā ʒ iij.
Alcoholis, ... q.s. *ad* ℥ ij.
M. Sig.—30 to 60 drops in water.
(*Squibb's Cholera Mixture.*)

℞. Acidi Carbolici, ... gr. iv.
Tinct. Iodi, ... gtt. xvj.
Aq. Menth. Pip., ... ℥ iv.
M. Sig.—A tablesp. every hour or oftener. (B.)

℞. Acidi Carbolici, ... gr. viij.
Bismuthi Subnit., ... ʒ ij.
Mucil. Acaciæ,
Aquæ Laurocerasi, . . āā ℥ j.
M. Sig.—Teasp. every hour or two, for vomiting and diarrhœa.

Cholera Infantum.

Bismuth Subnitrate, in hourly doses of 3 to 6 grains, is regarded by many as almost a specific. **Ipecacuanha**, greenish stools with mucus and often blood (B). **Arsenic**, for vomiting and collapse (R). **Mercury**, gr. $\frac{1}{6}$ of gray powder hourly of great service in infantile cholera with incessant sickness, profuse almost continuous diarrhœa, offensive and nearly colorless stools. A Starch injection, with a minute quantity of Laudanum, assists the gray powder, and should be given in urgent cases (R). **Zinc Oxide**, with Bismuth and Pepsin, is very useful (B). **Camphor**, ʒj to ℥iv of milk, very serviceable (B); an admirable remedy for summer and choleraic diarrhœa (R). **Opium**, generally necessary. Enemata of Starch and Laudanum (see above under Mercury). **Morphine**, hypodermically, in doses of gr. $\frac{1}{200}$ to $\frac{1}{30}$ according to age, the latter dose for a child of one year, with 5 or 6 drops of Ether, to be repeated in an hour, the most efficient treatment (E. Smith). **Copper Sulphate**, often very successful (B). **Carbolic Acid**, with Bismuth, may arrest the disorder promptly (Br). **Lead Acetate**, is one of the most useful astringents in this complaint (Br). **Potassium Bromide**, when due to nervous irritation or cerebral congestion (B). **Silver Nitrate**, is beneficial after the acute symptoms have passed (B). **Caffeine**, when due to nervous irritation (R). **Coto Bark**, the tinct. gtt. j–iij, is highly recommended by Rohrer for choleraic diarrhœa in children. **Alcohol**, in grave cases, with tendency to collapse, gtt. x–xx of brandy with milk every 30 to 60 minutes. **Diet.** Farinaceous food a common cause. Cow's milk O$\frac{3}{4}$ with sacch. lactis ℥j to O$\frac{3}{4}$ aquæ-bul., or cold milk with Lime-water (R); milk, animal broths; no starches or fats (B). **Drinks**, as water, weak tea, etc., freely, to keep vessels filled and prevent paralysis of the heart (Meinert). **Spice Poultice**, to abdomen, composed of Cloves, Ginger and Cinnamon, mixed with brandy or whisky. **Mustard Bath**, in stage of collapse, with mustard over the heart, and Ether hypodermically (Smith). **Lactic Acid**, a 2 per cent. solution in drachm doses, 5 to 8 times in 24 hours, in epidemic diarrhœa of infants with green discharges, with local antisepsis as to linen and diapers, on the theory of a bacillary origin for the disease (Hayem).

Prescriptions.

℞. Cupri Sulphat., ... gr. j.
Tinct. Opii Deod., ... gtt. viij.
Aquæ Destil., ... ℥iv.
M. Sig.—Teasp. every 2, 3, or 4 hours for a child of one to two years old. (B.)

℞. Acidi Carbolici, ... gr. xxiv.
Spt. Vini Gallici, ... gtt. xxiv.
Aquæ Menth. Pip., . . ℥jss.
Mucil. Acaciæ, ... ʒvj.
Syr. Papaveris, ... ʒvj.
Tinct. Opii Deod., . . gtt. x.
M. Sig.—A teasp. every 2 hours.

℞. Hydrarg. Chlor. Mitis, . . gr. $\frac{1}{10}$.
Bismuthi Subnitrat., ... gr. ij–v.
In powder every half-hour for the vomiting and purging.

℞. Acidi Carbolici, ... gr. iv.
Bismuthi Subnit., . . . ʒij.
Mucil. Acaciæ, ... ℥j.
Aquæ Menth. Pip., . . . ℥iij.
M. Sig.—Teasp. every 2, 3, or 4 hours. (B.)

℞. Plumbi Acetat., ... gr. xxiv.
Pulv. Opii, ... gr. xij.
Pulv. Camphoræ, ... ʒss.
Sacch. Lactis., ... q. s.
Triturat. et div. in chart. xij.
Sig.—One every hour. (B.)

℞. Hydrarg. Chlor. Mitis, . . gr. $\frac{1}{6}$.
Plumbi Acetatis, ... gr. $\frac{1}{4}$.
Opii, ... gr. $\frac{1}{6}$–$\frac{1}{10}$
Ft. pulv. no. j. Repeat every half-hour or hour for the acute gastric symptoms.

Cholera Simplex.

Camphor, an admirable remedy (R). **Salol**, is highly efficient. **Salophen**, is equally so. **Veratrum Album**, for the vomiting (R). **Copper Salts**, have been given (R). **Arsenic**, for vomiting; also for collapse in latter stages (R). **Chloral**, by injection, the most efficient treatment (B). [See C. ASIATICA for formula.] For the cramps, Chloral ℥i, in Lin. Saponis ℥iv–vj, applied with friction to the abdomen (DaC). **Carbolic Acid,** with Bismuth, very effective (B). [See above, C. INFANTUM.] **Lead,** the Acetate, in early stages (R). **Opium,** gr. $\frac{1}{4}$–$\frac{1}{2}$ Morphine, hypodermically; very useful (B); Opium, gr. $\frac{1}{6}$, $\frac{1}{4}$, or $\frac{1}{2}$, every 2, 4, or 6 hours in early stage (P). **Calumba,** as anti-emetic, of great value (P). **Ipecacuanha,** has been used with much advantage (Wa). **Sumbul,** said to have proved successful (P). **Mustard,** as an emetic in collapse, to stimulate a failing heart (P). **Cajuput Oil,** much used in India for choleraic affections (P). **Alcohol.** Iced brandy in small doses for vomiting (B). The value of stimulants justly doubted; if given, should be largely diluted (Wa). [Compare CHOLERA ASIATICA and INFANTUM, above.]

Chordee.

Aconite, gtt. j, of tinct. hourly, will relieve (R. P). **Belladonna,** combined with Camphor or Opium, gives the best results of remedies administered internally (St). **Camphor,** ʒj doses of the spirit will relieve (R). **Cantharis,** gtt. j of tinct. ter die, will prevent (R). **Cannabis Indica** or **Cannabis Sativa** (P). **Lupulin,** valuable (P); said to prevent (B). **Morphine,** hypodermically, the one sure remedy; should be injected into the perineum at bedtime (St). **Cocaine,** a few drops of a 4 per cent. solution, locally to the glans; or injected into urethra, promptly relieves chordee. **Diet,** should be plain, even low, no stimulants; copious draughts of barley-water, or linseed tea.

Prescriptions.

℞. Liq. Morph. Magendie, . . ʒiv.
Atropinæ Sulphat., ... gr. j.
Acidi Acetici, ... q. s.
Aquæ Destillat., ... *ad* ℥j.
M. Sig.—♏v–viij hypodermically at bedtime. (St.)

℞. Pulv. Opii, ... gr. xij.
Pul. Camphoræ, ... gr. xxiv.
Sacch. Alb., ... q. s.
Fiant capsulæ xij.
Sig.—One at bedtime, to be repeated in 2 hours if required. (St.)

Chorea.

Exalgin, is held by many observers to have specific power over chorea, given in doses of gr. ij three times a day, gradually increased, if necessary, to gr. iij five times a day; with Citrate of Iron and Quinine after meals (Dana). **Antipyrin,** is successfully employed. **Cimicifuga,** in cases due to menstrual derangement, is very useful (P); when rheumatic history (R); a very valuable remedy (P). **Strychnine,** in doses gradually increasing to toxic (Tr); minute doses (gr. $\frac{1}{80}$ to $\frac{1}{40}$) have been of much use when from fright or commencing puberty (B). **Arsenic,** large doses required, ♏v ter die, when non-anæmic (B); very successful in uncomplicated cases (R). **Zinc,** the Sulphate, has similar action to Arsenic, but is inferior (B); in large and increasing doses it is very useful (R). **Iron,** large doses of the Subcarbonate in anæmic cases, about the time of puberty (B). Chalybeate waters often relieve or cure. Arsenic generally better, unless anæmia coexists (R). **Hyoscyamine,** gr. $\frac{1}{200}$ ter die, gradually increased, has cured cases which resisted all other remedies (Da C). The mydriatics are very suitable in nervous, delicate children. **Cuprum Ammoniatum** has been used successfully (B). **Veratrum Viride,** has been employed (R). **Cocculus,** or Picrotoxin, large doses (P). **Conium,** in large doses, to quiet muscular agitation (B); is only palliative (R); evidence contradictory as to its value (P). **Valerian,** said to restrain the movements (R); useful when from worms (P). **Chloral,** contributes to a cure by inducing quiet sleep (R). **Chloroform,** inhalations, often of great service in severe cases (R). **Morphine,** with Chloral, hypodermically in large doses for severe cases Tr); when the movements prevent sleep (R). **Physostigma,** is recommended (R); of doubtful benefit (B). **Musk,** has been given (R). **Cod-**

liver Oil, in low nutrition (R). **Water.** Cold affusion to head and spine, and cold baths, important (B); not to be used if rheumatism, fever, or pain in joints. Tepid water first (R). **Galvanism**, the constant current, used by Benedict in twenty cases, all recovering. Galvanic chain around neck and down the back.

Prescriptions.

℞. Tinct. Ferri Chloridi, . . ℥j.
Liq. Acidi Arsenosi, . . . ʒij.
Syr. Limonis, ... ℥ss.
Syr. Simplicis,
Aquæ, ... āā q. s. *ad* ℥iv.
M. Sig.—Half a teaspoonful thrice daily, after meals, gradually increased, and effects carefully watched.

℞. Chloralis Hydrat., ... ʒiv.
Tinct. Hyoscyami, . . . ℥j.
Syr. Limonis, ... ℥j.
Aquæ Cinnamomi, ... ℥iv.
M. Sig.—A teasp. 3 or 4 times daily, according to age.

Choroiditis.

Mercury, as in iritis; cannot be borne to the same extent as in latter disease (A). **Opiates**, necessary externally and internally to overcome pain (A). **Treatment**, is generally the same as in corresponding forms of iritis, but when atrophic spots appear on the choroid, no treatment can repair the damage (A). Rest of eyes and protection from light by blue glasses. In suppurative form (panophthalmitis) use **Atropine**, in strong solution, with ice compresses and leeches in early stage. Paracentesis repeatedly to relieve tension and give exit to pus. Canthoplasty of outer canthus to relieve the pressure of the lids (Roosa).

Climacteric Disorders.

Aconite, for nervous palpitations, and restlessness or "fidgets;" gtt. j hourly (R). **Cimicifuga**, for distressing headache (R). **Amyl Nitrite**, in small doses when the "heats" predominate, followed by cold, clammy, pale skin (R). **Ergot**, for the flooding, gr. ij. of Squibb's extract, in fresh pill every hour until relieved. Cannabis Indica may be well combined with it. **Cannabis Indica**, is used in the headaches of the menopause with uniformly good results. [See HEADACHE, for formula.] **Nux Vomica, Opium**, and **Belladonna**, when symptoms described under **Iron** are limited to head and face (R). **Iron**, for flutterings of the heart, with fullness of head, heat and weight on the vertex, frequent flushings, and hot and cold perspirations. Large doses of Sesquichloride ter die (R). **Ammonia**, Raspail's sedative lotion to painful part of head, in headaches (R). **Potassium Bromide**, for despondency, with sleeplessness and irritability, often also with heats, flushings, perspirations (R). **Physostigma**, the extract, gr. $\frac{1}{80}$ every ½ hour for 7 or 8 doses for flatulence and a sensation of fluttering at the pit of the stomach (Smith). **Camphor**, for drowsiness and headache. Eau-de-cologne saturated with Camphor rubbed to the head (R). **Zinc Valerianate**, hysterical symptoms (R). **Change** of air and scene, where other treatment only partially successful (R). **Warm Bath**, to promote free perspiration; at 90° to 95° Fah. for an hour once a week, will obviate many of the symptoms (R). [Compare METRORRHAGIA.]

Coccyodynia.

Chloroform, injected as deeply as possible about seat of greatest pain (B). **Electricity**, has cured one severe case of 12 years' standing, and helped others. **Surgical** treatment the only resource in rebellious and painful cases (Ros). Nott extirpated the coccyx; Simpson performed subcutaneous section of muscles and ligaments. Goodell removes the bone, after first treating the case as a local expression of a general neurosis.

Coldness.

Strychnine, for cold hands and feet (R). **Cold Baths,** with friction to the skin, nightly for cold feet (R). **Spinal Ice-bag,** is often efficiently employed in general coldness of the surface, and persistent coldness of the hands and feet (R). **Cocaine** or **Atropine,** will raise the body-temperature. (See page 43, *ante.*)

Colic, Intestinal.

Nux Vomica, quickly subdues abdominal cramps and spasms (P). **Belladonna,** especially in children (R). **Chamomile Oil,** ♏ iv–vj, in colicky attacks of hysterical women (P). **Cocculus,** of great value, especially during pregnancy (P). **Chloral,** sometimes relieves (R). **Chloroform,** effective in flatulent colic; also useful in hepatic and saturnine (B); often used combined with Opium (D). **Potassium Bromide,** in a peculiar form in young children (R); given in Anise-or Peppermint-water is of greater efficacy for the colic of infants than the opium preparations in general use, and perfectly safe (B). **Asafœtida,** no better remedy in flatulent colic of infants; teasp. doses of the Emulsum Asafœtidæ (B). **Morphine,** gr. ⅛–¼ hypodermically, repeated in 15 minutes, gives more relief than any other remedy, in all forms of colic (B); frequent small doses (R. P). **Arsenic,** will cure in a surprising manner when enteralgia is idiopathic (B). **Essential Oils,** especially those of Cloves and Cinnamon (R); of Anise, Cardamom, etc., Oil of Rue in flatulent colic of children (P). **Magnesium,** the Carbonate with Opium and Asafetida, as in Dewees's Carminative (see page 135), the dose being ♏ xx for an infant of 2 to 4 weeks old. **Tobacco,** as enema; dangerous! (B); as clyster, or by stomach (R). **Ammonia,** in spasm of intestinal canal and in colic of children or infants from bad feeding (R). **Lime Water,** for young children who eject milk in lumpy masses, with colic and flatulence (R). **Water.** Hot fomentations to ease pain (R). A copious enema of warm water often gives immediate relief.

Prescriptions.

℞. Spiritus Chloroformi,
Tinct. Cardamomi Co., . āā ℥ ij.
M. Sig.—Teasp. in water every ½ hour. (B.)

℞. Atropinæ Sulph., ... gr. j.
Zinci Sulphatis, ... gr. xxx.
Aquæ Destil., ... ℥ j.
M. Sig.—3 to 5 drops 2 or 3 times daily. (B.)

℞. Ext. Gentianæ,
Pulv. Rhei, ... āā ʒ j.
Ft. pil. xx. Sig.—One or two thrice daily for tendency to colic.

℞. Pulv. Camphoræ,
Pulv. Capsici,
Pulv. Zingiberis, . . . āā gr. ij.
Ft. pil. xij. Sig.—One as required.

Colic, Lead.

Alum, singularly, is the best remedy (B); gr. x hourly (R); converts the poisonous salt of lead in the system into a comparatively innocuous sulphate; ʒ jss–ij daily with ♏ xl–l Tinct. Opii, and an occasional dose of Castor or Croton Oil to procure one or two motions daily (Wa). **Opium,** gives more relief than any other remedy, gr. ⅛ to ¼ of Morphine hypodermically (B); gr. ij–iv of Opium, with a moderate dose of Castor Oil (P). **Sulphuric Acid,** diluted well, as a prophylactic, and is useful in the treatment of the disease (B); considered remarkably efficient when used in association with repeated Sulphur baths (Wa). **Calomel,** a full dose, with or without Opium, followed in a few hours by Castor Oil and a Turpentine enema, often affords speedy and marked relief (Wa). **Tobacco,** may control, but is dangerous (B). **Croton Oil,** in half-drop doses, with sufficient Opium to relieve the pain, repeated every 3 or 4 hours until free evacuations are produced; proves effectual when other remedies fail

(Wa). **Magnesium Sulphate**, for the constipation, and to remove the poison from the system; should be combined with **Potassium Iodide**, ʒj of the former given ter in die and about two hours after having given gr. v–x of the Iodide. This treatment dissolves the lead in the tissues, causes its elimination by the intestinal mucus, renders it insoluble after it has entered the intestinal canal, and quickly removes it from the body (Br). **Atropine**, gr. $\frac{1}{100}$, with Potassium Iodide, gr. v, gives excellent results in the treatment of lead poisoning, the former relieving the colic and pain in the head in the most rapid manner, keeping the bowels open freely, assisting in the return of the bodily powers, and aiding in the removal of the lead by the Iodide (Humphreys). [Compare the treatment of Lead-poisoning in the Appendix.]

Prescriptions.

℞. Aluminis, ... ʒij.
Ac. Sulphurici Dil., . . . ʒj.
Syr. Limonis, ... ℥j.
Aquæ, ... ℥iij.
M. Sig.—Tablesp. every hour or two for colic. (B.)

℞. Magnesii Sulphatis, . . . ℥j.
Ac. Sulphurici Dil., . . . ʒj.
Aquæ, ... ℥iv.
M. Sig.—Tablesp. every 3 hours (B); or thrice daily, each time preceded by a 5 to 10-grain dose of Potassium Iodide. (Br.)

Colic, Renal and Hepatic.

Ether, inhaled in paroxysms of hepatic colic (R). **Chloroform**, inhalation in renal and biliary colic, inferior only to Morphine injection, superior to Opium, warm baths, etc.; two or three administrations will be required (R). [See also COLIC, INTESTINAL.] **Counter-irritation**, flying blisters for renal colic (R). **Opium**, small doses with Spt. Chloroformi every five or ten minutes until the pain gives way, or Morphine hypoderm (R). **Turpentine**, has been given with benefit in biliary colic (R). **Dioscorea**, is used successfully in so-called bilious colic, ♏xv–xxx of the fluid extract. **Water**, warm baths to ease the pain (R). **Aliment.** Withhold all starches and fats. Alkaline mineral waters are useful (B). [Compare CALCULI.]

Coma.

Blisters, in the comatose condition, large blisters or mustard poultices should be applied in quick succession to different parts of the body—chest, abdomen, thighs and calves; often very valuable in the critical condition near the end of an acute illness (R). **Cold Douche**, for stupor of drunkenness or of opium poisoning; may have to be repeated if relapses occur. It should be kept up for a long time if pulse and breathing improve, or no worse (R). **Croton Oil**, as purgative, ♏¼ or ⅓ every hour (R). **Potassium Bitartrate**, as purgative when blood is poisoned (R). **Mustard**, as poultice to the feet and ankles in the coma of narcotic poisoning (P). **Exercise.** In coma from poisoning the patient should be persistently walked about. [Compare CEREBRAL CONGESTION, URÆMIA, and the Treatment of Narcotic Poisoning, *ante*, page 316.]

Condylomata.

Nitric Acid, ℥j to Oj aquæ, as wash, frequently used (R). **Thuja**, locally a strong tinct. with gtt. v in water, night and morning, internally, for warts with narrow base and pendulous body. Warts about anus or pudenda of either sex, whether syphilitic or not, often rapidly cured by Thuja (P); in non-syphilitic warts of penis or vulva, I have employed it with satisfaction (Pf). **Mercury**, Calomel dusted over, after washing with a solution of Chlorinated Soda (Ricord, R. B); the Nitrate locally, or a 20 per cent. oleate (R). **Zinc**, the Chloride, Iodide or Nitrate as local applications (R). **Arsenic**, Arsenous Acid as a caustic (R). **Carbolic Acid**, as a mild escharotic (B). **Chromic Acid**, gr. c to ℥j aquæ dest.; a good local application (B). [Compare SYPHILIS, WARTS.]

Conjunctivitis, Catarrhal.

Zinc, a weak solution of the sulphate or acetate as astringent collyrium (B); gr. j–ij ad ℥j aquæ destil. as mild astringent lotion every few hours, with ice locally in the earlier stage (Roosa). **Sodium Borate,** gr. v ad ℥j aquæ dest. a good and mild astringent for ordinary cases. **Boric Acid,** gr. vj ad ℥j each of aq. camph. and aq. destil., as collyrium (Fox). **Boroglyceride,** ʒss ad ℥j of aq. camph. and aq. dest. a very efficient application. (See *ante*, page 63.) **Carbolic Acid,** a 5 per cent. solution applied every two hours by spray of steam atomizer, which dilutes it one-half, an extremely efficient application, relieving the pain and contracting the vessels. **Cocaine,** the Hydrochlorate in 3 to 5 per cent. solution or oleate, applied to the palpebral conjunctiva, is a very efficient palliative, especially where much pain and photophobia (Koller). **Alum,** Potassa Alum after acute symptoms subside (Br); gr. iij–v ad ℥ij aq. destil. brushed over the conjunctiva twice daily. **Pulsatilla,** ʒj–ij of tinct. to ℥iv aquæ, as wash several times daily, also ♏j–x internally every 3 or 4 hours (P). **Opium,** the wine dropped into the eye relieves pain and improves the condition of the conjunctiva (R); Morphine, gr. j–ij ad ℥j, is often used in collyria with Zinc salts or Alum; but is irritant. **Mercury,** Calomel dusted over the palpebral conjunctiva, in severe cases; should be finely levigated and dusted from a camel's hair brush (B); the Oleate of Mercury and Morphine to the outside of the lids in palpebral conjunctivitis (R); the Red Oxide as ointment, gr. x ad ℥j Vaselin (Bader); the Yellow Oxide, gr. viij–x ad ℥j Vaselin (Seely). **Cadmium,** as collyrium, gr. ij of the sulphate to ℥j aquæ rosæ (B). **Tannin,** in Glycerin, ʒj ad ℥j, every second day in chronic catarrhal conjunctivitis, presenting diffused injection of vessels with œdema (Hansell). **Silver Nitrate,** solutions of strength gr. j–iv ad ℥j applied by physician to conjunctiva (R); should not be given to patient; Zinc and Copper salts are preferred (B). **Copper,** the Sulphate crystal in chronic cases where great swelling or hypertrophy of the papillary layer; is too irritating to be entrusted to the patient. **Lead** salts should never be used lest deposits occur in slight abrasions or ulcerations of the cornea. **Sulphates,** of Zinc, Copper and Iron with Alum āā, gr. j to ℥j of aq. destil. as collyria, extremely efficient; in severe cases may be used in saturated solution by the physician (Holmes). **Castor Oil,** a drop placed in the eye often allays the pain and photophobia caused by an irritant (R). **Belladonna,** locally and internally (B). Atropine in strong solution, gr. iv to ℥j, is one of the best local applications where mydriasis is not objectionable. **Euphrasia,** as a mild astringent (P). **Blisters,** behind the ears in bad cases (R). **Ergot,** the fluid extract locally gives excellent results in acute conjunctivitis (B). **Staphisagria,** especially in tarsal ophthalmia (P). **Colchicum,** when gouty diathesis (A). **Spigelia,** in rheumatic form (P).

Prescriptions.

℞. Zinci Sulphatis,
Morphinæ Sulph., . . āā . gr. j.
Atropinæ Sulph., ... gr. ss.
Aquæ Rosæ, ... ℥j.
M. Sig.—Eye-water.

℞. Liq. Plumbi Subacetat., . ʒj.
Aquæ Destillatæ, ... ʒiij.
M. Sig.—For local use. To be brushed over conjunctiva of everted lids by the surgeon and washed off with water. (*Buller*.)

℞. Hydrarg. Oxidi Rub., . . gr. x.
Atropinæ Sulph., ... gr. j.
Vaselini, ... ℥j.
M. Sig.—A minute portion as an ointment for the eye. (*Bader*.)

℞. Ung. Hydrarg. Nitrat., . . gr. xx.
Cocainæ Hydrochlorat., . gr. v.
Vaselini Albi, ... ʒij.
Use a fresh ointment, triturate thoroughly, and label "Ointment for the eye."

Conjunctivitis, Diphtheritic.

Zinc Chloride, gr. ij–iv ad ℥j, as collyrium, has succeeded admirably (Wa). **Atropine,** locally throughout the disease; not very effectual (Roosa); is, for severe cases, powerless; cornea sure to be attacked and liable to slough

(Noyes). **Boric Acid**, 4 per cent. solution, as antiseptic, the best application, with **Quinine**, internally in full doses (Noyes). **Iron**, the Pyrophosphate for children, ʒj in ℥iij of simple syrup, of which a teasp. thrice daily after meals, with Quinine in 1 to 3-grain doses thrice daily, and good food (Derby). **Cold** by compresses, as in purulent ophthalmia, in early stages. **Silver Nitrate** in solution locally, a 10 grain solution or the mitigated stick in the second stage. **Tannin**, gr. xx to the ℥ of Glycerin, later on, applied every day, with hot water lotions if corneal complications.

Conjunctivitis, Gonorrhœal.

Zinc Chloride, gr. j–ij ad ℥j aquæ, as collyrium, used with marked benefit (Wa). **Silver Nitrate**, a 2-gr. to the ℥ solution, after syringing out the eye with warm water, followed by ice compresses, in hope to abort the attack, if seen early (Roosa). **Cold**, by ice or wet compresses, essential in the early stages (C). **Atropine**, may be used from the beginning, as corneal complications begin very early. **Treatment**, generally the same as for Purulent Conjunctivitis. Isolation and cleanliness are of prime importance.

Conjunctivitis, Granular.

Silver Nitrate, the diluted stick applied lightly and quickly (C); strong solutions to granular lids, gr. xx ad ℥j cautiously when corneal ulcers exist (B); mild solutions better, gr. v ad ℥j, daily in the papillary form; in miliary trachoma it should not be stronger than gr. ij ad ℥j (Noyes). Applications lose their effect after a time, and should be changed (Roosa). **Copper Sulphate**, the solid crystal lightly touched to the membrane once a day, the favorite astringent and caustic in all forms of trachoma (Roosa); when membrane torpid to other stimulation and when lymphoid substance is predominant; as ointment gr. v–x ad ℥j Vaselin, when for use by patient (Noyes). **Alum**, a smooth crystal is a useful daily application (Noyes). **Tannin**, gr. x–xxx ad Glycerini ℥j, an application to change to from others (Roosa). **Bismuth** is one of the numerous applications in chronic conjunctivitis and granular lids (B). **Phytolacca** internally, is undoubtedly efficient in granular conjunctivitis (W). **Jequirity**, to excite substitutive inflammation. (See *ante*, page 57.) **Atropine**, gr. ij ad ℥j aquæ, thrice daily, is often advisable, where moderate irritation and haziness of the cornea (Noyes). **Hygienic Measures**, of great value. Protection by blue or smoked glasses. Rest of eyes, best secured by using Atropine collyria. Hot or cold water as local bath frequently. Tobacco must be avoided, also all locations contaminated by impure air. Canthoplasty of outer commissure when lids press on globe.

Conjunctivitis, Phlyctenular.

Mercury. Calomel finely levigated and dusted from a camel's-hair pencil over the membrane in phlyctenular ophthalmia, an excellent local application; which should never be used when Iodine is being taken. In more obstinate cases a small bit of Pagenstecker's ointment, the size of a pin-head (Hydrarg. Ox. Flav. gr. j-iij, Vaselini ʒj), placed between the lids (Noyes). **Ergot**, the fluid extract, applied undiluted, gives excellent results in the phlyctenular ophthalmia of children (B). **Antimony.** Tartar Emetic gr. $\frac{1}{48}$ to $\frac{1}{36}$ 3 or 4 times daily in strumous ophthalmia, with sharp purgation at the outset (R). **Belladonna**, or Atropine, locally in strumous ophthalmia, of great service in relieving pain; constitutional treatment also required (Wa). **Arsenic**, invaluable in inveterate cases of strumous ophthalmia, especially when complicated with cutaneous eruptions (Wa). **Tannin**, finely powdered and dusted over the everted lid, gives remarkably good results in this and other forms of conjunctivitis, causing very little pain and no inflammatory reaction (B). **Carbonic**

Acid Gas, applied to the eye is said to relieve the pain and photophobia of strumous ophthalmia (R). **Hydrastis,** as lotion, is serviceable when Meibomain follicles are implicated, causing adhesion of lids in the morning (P). **Eserine,** locally, to reduce the pupil and shut out the light (P). **Iodine,** is employed locally in strumous ophthalmia, for its alterative stimulation (W). **Zinc Chloride,** gr. ij–iv ad ℥j, as collyrium, has succeeded admirably in pustular ophthalmia (Wa). **Zinc Sulphate,** gr. j–iv ad ℥j, is very serviceable; the addition of Liquor Plumbi improves its efficacy (Wa). **Rhubarb,** the Mistura Rhei et Sodæ where much disturbance of digestion present. **Tonics,** may be given later, preparations of Cinchona and Iron. **Cod-liver Oil,** in strumous subjects, tends to remove the manifestations of the disease (R).

Conjunctivitis, Purulent.

Alum, gr. ij ad ℥j aquæ, a sufficient astringent application in ophthalmia neonatorum (Roosa); gr. viij ad ℥j aquæ, applied every ¼ or ½ hour in the purulent ophthalmia of children, its success depending on the frequency of the application (R). **Copper Sulphate,** gr. j ad ℥j aquæ camph. as collyrium in purulent ophthalmia of infants (Wa). **Silver Nitrate,** gr. iij–x ad ℥j aquæ destil., rarely so strong as gr. x, once daily applied by brush to everted lids in purulent ophthalmia of infants (Noyes); solution gr. ¾ ad ℥j twice daily under lids (Meigs); by many considered needless and injurious (Roosa). **Boric Acid,** a 4 per cent. solution, as antiseptic, is all that is necessary in mild cases; in others it is the proper fluid for cleansing the eye (Noyes). **Atropine,** when the cornea becomes invaded, and shows haziness, a solution gr. ij ad ℥j, must be instilled every 3 hours (R). **Cold,** by ice or wet compresses, essential in the early stages of acute purulent ophthalmia (C). **Cleanliness,** a matter of great importance. As the discharge is infectious the patient should be isolated and care taken to prevent inoculation of the other eye therewith.

Prescriptions.

℞. Sodii Boratis, ... gr. xij.
Zinci Sulphatis, ... gr. j.
Aquæ Camph., ... ℥j.
Aquæ Destillat., ... ℥j.

M. Sig.—Apply to lids 2 or 3 times daily in oph. neonatorum, with solution of Silver Nitrate, gr. ¾ ad ℥j injected under lids twice daily. (*Meigs.*)

℞. Sodii Boratis, ... gr. iij.
Aquæ Rosæ,
Aquæ, ... āā ℥j.

M. Sig.—Apply beneath lids three or four times daily after cleansing.

℞. Atropinæ Sulph., ... gr. j.
Glycerini, ʒss. Aquæ, . . ʒij.

M. Sig.—Two drops into the eye.

Constipation.

Nux Vomica, gtt. j–ij of tincture bis vel ter in die (R); gtt. v–x in a glass of cold water before breakfast and dinner, often overcomes the most obstinate constipation (P); especially useful when great fecal accumulations from torpor of bowel (B). **Sulphur,** gr. x with Confectio Sennæ, often succeeds after other remedies fail (R). Sulphurous mineral waters (B); or Sulphates in purgative waters; frequent small doses (R). **Podophyllum,** the most generally used cathartic when secretion deficient (B); gr. $\frac{1}{12}$ to $\frac{1}{8}$ night and morning when constipation with nervous and bilious headaches (P). **Senna,** as in the Pulvis Glycyrrhizæ Compos., which may be taken in doses of a teasp. to a tablesp. as required, and kept up for months (Goodell). **Mercury,** Calomel or gray powder as a cathartic (R). **Hydrastis,** very valuable, when constipation referable to a sluggish liver (P). **Magnesium,** the Bicarbonate, a useful and mild aperient (R). **Alum,** a cheap and serviceable laxative (B). **Aloes,** in minute doses, in pill with **Ferric Sulphate,** as the official Pil. Aloes et Ferri, is one of the best agents in the management of chronic cases; purgation should not be aimed at. **Ipecacuanha,** gr. j every morning, fasting, when great torpor of bowel (R). **Cocculus,** flatus, hard lumpy motions (P). **Turpentine,** in purely atonic constipation, with gaseous distention of colon, has triumphed when all other remedies failed (P). **Physostigma,** very effective in intestinal torpor (B). **Stillingia,** ♏x of fluid extract in habitual constipation (B). **Castor Oil,** a mild efficient cathartic (B). **Ammonium Chloride,** in the so-called bilious state, with constipation (B). **Arsenic,** small doses (♏ij) of Fowler's solution often overcome constipation (R). **Belladonna,** gr. ½ of the extract at night, in habitual constipation (B); gr. ⅙–¼ once a day, especially when dyspepsia (R); acts directly on the bowel as a stimulant (P). **Croton Oil,** the most efficient cathartic, when simple impaction without inflammation; gtt. j–ij (B); when evacution of blackened feces (R). **Cascara Sagrada,** the fluid extract in doses of ʒj, produces large, soft evacuations without griping, and leaves behind it a laxative influence. **Frangula,** in similar doses, is equally efficient, but if from a fresh bark may produce griping. **Cathartics,** especially Confectio Sennæ, Pil. Rhei Compos., Pil. Aloës, the Comp. Cathartic Pill, as well as those above (B). Purgation as usually practiced denounced by the editor of the *Lancet*, October 1, 1870. **Saline Waters,** are useful (B); Pullna, Friedrichshall, or Hunyadi, the first two with milk, are good for children (R). **Enemata,** of soapsuds and salt, or a pint of cold water (B); or Turpentine, Castor Oil, āā ℥ss to Oss–j of gruel (P); the habitual use of warm enemata increases torpor of the bowels (R). **Tamar-Indien,** a favorite mild aperient, is proprietary, and supposed to contain Cocculus, Glauber's salt, etc. **Aliment,** important in habitual constipation; corn bread, cracked wheat, oatmeal, bread of unbolted flour, fruits, green corn, tomatoes, and celery; ½ dozen each of almonds and raisins daily. A glass of cold water before breakfast may overcome habitual constipation (B). An orange or a smoke after breakfast (R). Tobacco habitues rarely suffer from constipation. [Compare INTESTINAL OBSTRUCTION.]

Prescriptions.

℞. Ext. Colocynth Co., . . . gr. xij.
Ext. Belladonnæ, ... gr. ij.
Ext. Gentianæ, ... gr. vj.
Olei Cari, ... gtt. iij.
Ft. pil. vj. Sig.—One pill at bedtime.
(*Goodell.*)

℞. Podophylli Resinæ. . . . gr. ij.
Quininæ Sulphatis,
Ext. Aloes, ... āā gr. viij.
Fellis Bovini, ... gr. xvj.
Ft. pil. no. xvj. Sig.—One or two at bedtime. (*Goodell.*)

℞. Ext. Rhamn. Pursh. Fl., . ℥j.
Ext. Belladonnæ Fl., . . ʒj.
Tinct. Nucis Vom., . . . ʒij.
Syrupi et Aquæ, . . āā *ad* ℥iv.
M. Sig.—Teasp. thrice daily in obstinate constipation. (*Clarke.*)

Castor Oil Emulsion.

℞. Ol. Ricini,
Glycerini, ... āā ʒj.
Tinct. Aurantii, ... ♏xx.
Tinct. Senegæ, ... ♏v.
Aq. Cinnamomi, . . q. s. *ad* ℥ss.
M. ft. emulsio. Sig.—One dose.

Artificial Hunyadi Water.

℞. Magnesii Sulph.,
Sodii Sulph., ... āā ℥ss.
Potas. Sulph., ... gr. ij.
Sodii Bicarb., ... gr. viij.
Sodii Chloridi, ... gr. xx.
Aquæ, ... q. s. *ad* ℥viij.
M. Sig.—A winegl. before breakfast.

Convalescence.

Lime, as Lime-water, or the Carbonate, in convalescence from serious disease (R). **Quinine** or **Hydrastine,** to promote digestion and appetite (B). **Fats,** especially Cod-liver Oil (R). **Alcohol,** before or during meals (R). **Koumiss,** possesses great value (B). **Bitters,** especially Gentian and Calumba (B); the latter especially when stomach weak (R). **Eucalyptus,** a serviceable tonic (B). **Coca,** ʒss–ij of the fluid extract as a dose (B). **Guarana,** gr. xv–ʒj may be given (B). **Opium,** as Laudanum, injected per rectum, for insomnia of convalescents (R). **Sea-Baths,** valuable in many cases (R). **Diet,** requires the most careful attention ; the prevalent error of giving food of difficult digestion too early must be guarded against, especially in intestinal and gastric disorders. The strictest moderation should be enjoined. The symptoms must be watched closely, and combated by appropriate medication. [Compare ADYNAMIA for Tonic Prescriptions.]

Convulsions.

General Directions.—In all cases, horizontal posture, fresh air, loosen the clothing ; insert a plug of soft wood, or a cork, between the teeth, to prevent biting the tongue ; sprinkle the face and chest with cold water. **Epileptic.**—The general directions above will usually suffice. [See also EPILEPSY.] **Hysterical.**—The diagnostic peculiarities are : pupils not dilated, but are sensitive to light ; no wounding of tongue ; face not livid ; pulse usually normal. [See also HYSTERIA.] **Infantile.**—Administer some anti-spasmodic, as Ether, alone or combined with Musk or Belladonna ; then search for any mechanical cause, as a pin in a dress, etc. Lance gums if dentition the cause (A). [See CONVULSIONS, INFANTILE.] **Solanum Carolinense**, has a good reputation in the southern states for epilepsy and other convulsive affections, and has rendered excellent service in my hands (Napier) ; a tincture is prepared by bruising the berries and steeping them in whiskey, of which the dose is ʒj, repeated until drowsiness is produced. [Compare EPILEPSY, HYSTERIA, ALBUMINURIA, PUERPERAL CONVULSIONS, URÆMIA.]

Convulsions, Infantile.

Belladonna is of the highest value in certain congestive forms, as in fits due to the irritation of teething, or those referable to whooping cough (P). **Ignatia**, is efficient in convulsions of children from intestinal irritation, no cerebral congestion being present (P). **Valerian**, has been successfully used when from worms, to which parasites it is fatal (P). **Potassium Bromide** in all forms of convulsions in children (R) ; children bear it in large doses, gr. v thrice daily or oftener for a child a year old in convulsions from teething (Br). **Chloral**, in large doses, gr. v, by mouth or rectum (Br) ; best used as a suppository rather than by liquid injection, and often very useful (R) ; it gives better results than any other agent. **Chloroform**, inhalations of great service (R) ; useful in all forms (B) ; should be used to arrest the convulsion and prevent recurrence (Smith). **Alcohol**, has remarkable power in arresting convulsions of dentition ; small doses of wine or brandy (W). **Asafetida**, in the convulsions of teething, a small portion in enema, appears to mitigate them (Wa). **Opium**, efficient, but dangerous in young children. **Veratrum Viride** has been employed successfully (R). **Amyl Nitrite**, gtt. v with gr. ¼ of Morphine, used in one case as a last resort, after five hours' convulsions in a child of 18 months, which resulted in producing quiet sleep (Engel). **Hot Baths**, are important, with cold affusions or ice to the head (B). **Spinal Ice-bag**, may be very efficient (R).

Prescriptions.

℞. Chloralis Hydratis, . . . gr. v.
Lactis, ... ℥j.

M. Sig.—As rectal injection. Or the dose may be made into a suppository with cacao-butter and inserted well up into the rectum.

℞. Sodii Bromidi,
Chloralis Hydratis,
Sodii Bicarb., ... āā gr. viij.
Aquæ, ... ℥j

M. Sig.—A teaspoonful every hour to a child under four months old.

Corneal Opacities

Cadmium, is said to promote their absorption ; gr. ij of the Sulphate to ℥j of rose-water as collyrium (R. Wa). **Mercury**, Calomel by insufflation, or the red Iodide gr. ij, Cerate gr. xl, Olive Oil gtt. xx, as ointment, successfully used (Wa) ;

weak solutions of the Bichloride, or ointments of the Oxides, gr. ¼ ad ℥j, as remedies, among many others, to hasten their absorption in recent cases (Arlt). **Oils**, Eel-liver and Cod-liver Oils, Ox-gall, Juniper Oil, Oil of Turpentine combined with Olive Oil, and others, dropped into the eye once or twice daily for the same purpose (Arlt). **Opium**, the wine at first, then insufflations of Calomel and Red Precipitate or Yellow Oxide ointment, most frequently used by me in recent cases (Arlt). **Potassium Iodide**, as ointment with Potassium Carbonate after Cod-liver oil or Oil of Turpentine with Olive Oil, in cases of longer standing (Arlt). **Silver Nitrate**, gr. v–x ad ℥j aquæ, as lotion (C). **Iodine**, internally and as collyria, has been efficacious, especially in strumous cases (Wa). **Sodium Chloride**, gr. x ad ℥j aquæ destil., of which ♏v–x injected subconjunctivally, to hasten disappearance of turbidity (C). **Operative Measures**, only in case of incrustations (as of lead and lime) situated superficially by removal of epithelium and anterior elastic layer; deeper interference may lead to suppurative keratitis. Excision of opaque cornea and transplanting of one from an animal's or a recently enucleated human eye (keratoplasty), has always failed. Artificial pupil by iridectomy, for central opacities which are unremovable. Tattooing to relieve deformity of disfiguring leucomata (Arlt). Pannus and leucoma are best let alone (D). **Stenopaic Spectacles**, for semi-transparent opacities in pupillary region (Donders). [Compare KERATITIS.]

Corns.

Salicylic Acid, in strong solution, removes excess of epidermis, warts and corns; is the essential ingredient of all "corn-cures." **Silver Nitrate**, solid, after soaking and paring (Wa); the best application for soft corns, and very irritable ones (D). **Acetic Acid**, strong, to remove corns (Wa). **Mercury**, Corrosive Sublimate in alcoholic solution locally to remove corns (Wa). **Iodine**, gr. xl ad ℥j Alcoholis, locally (Wa). **Poultices**, are useful; or a plaster of soft material with hole in centre (D). **Water**, hot and cold, alternately applied to inflamed corns. Keep a corn thin by frequent washing and paring. In performing the latter operation, the knife should work downward to the apex of the corn, so as to remove pressure from its centre.

Prescription.

℞.	Acidi Salicylici, ...	gr. xv.
	Extr. Cannabis Ind., . . .	gr. vijss.
	Alcoholis, 90°, ...	♏ xv.
	Ætheris, 62°	♏ xxxvij.
	Collodii Flexilis, ...	♏ lxxv.

Mix, and keep in closely-corked vial. Paint the corn every other day for a week, then it can be easily squeezed out.
(*Vigier.*)

Cough.

Opium, in some form, is much used in cough-mixtures; Morphine and Glycerin to fauces (B); moderate doses only useful in irritative affections of the air-passages, to allay irritation and hypersecretion, but it may do even fatal mischief in cases where secretion is copious and expulsory power feeble (P); opiates inadmissible when with copious expectoration there is any indication of bronchial congestion (Wa); very useful in violent and frequent cough with little rhonchus and no signs of obstructed oxidation; also, when cough is due to red, inflamed and ulcerated throat; Opium or Morphine given so as to cling for some time in contact with the pharyngeal structures (R). **Codeine**, is often efficient in cough (Br); of particular value in ¼ gr. doses; is slightly expectorant, also laxative, does not nauseate nor cause vomiting, nor affect the appetite; is far the best agent for the cough of phthisis, when morphine is not well borne (Kobler). **Nux Vomica**, in laryngeal cough of neurotic origin, 1-drop doses of the tincture every five minutes, is promptly efficient (Macfarlan); has specific action on the pneumogastric, and is one of the most efficient remedies in cough of any kind, whether from bronchitis, pneumonia, phthisis or emphysema, but especially in nervous coughs and periodic coughs which come on in evening and stay all night (*Jour de Méd.*). **Pulsatilla,** as Anemonine, ½ gr. and gr. doses, very useful in irritative cough, asthma, whooping-cough (P). **Iodine,** by inhalation for children in hoarse, hollow cough, wheezing (R); the tincture, 5–10 drops, inhaled from boiling water, for five minutes at bedtime, often gives most signal relief in the irritating cough of phthisis. **Apomorphine Hydrochlorate,** very valuable in cough where a persistent hacking without expectoration, or with difficult expectoration; the dose is only gr. $\frac{1}{20}$ to $\frac{1}{16}$ in the 24 hours; solution rapidly alters unless a few drops of Hydrochloric Acid are added (Stocquardt). **Terpin Hydrate,** in bronchial cough, and night-cough from habit, is very efficient in a 2-grain dose at bedtime, repeated early in the morning (Boyland). [See under BRONCHITIS, CHRONIC, for formula.] **Aconite,** irritable, tickling throat-cough; short, dry cough of asthmatics, with anxious look, full, strong pulse (P). **Belladonna,** often useful; no indications (R); internally and externally as plaster to the chest, very serviceable in spasmodic and nervous coughs (Wa). **Hyoscyamus,** very useful in spasmodic tickling night coughs (P).

Hydrocyanic Acid, for nervous, irritable cough, and cough of phthisis and mother's sympathetic cough (B); no more certain palliative for simple, nervous cough due to irritable state of the system (S); a valuable adjunct to ordinary remedies in cough of phthisis (Wa). **Potassium Cyanide,** is equally useful, gr. iij with ℥j each of Ext. Grindeliæ Fl., Syr. Scillæ and Syr. Tolutan., makes a good non-opiate cough mixture, of which the dose is ʒj every 4 hours (Waugh). **Prunus Virginiana,** has some influence due to its Hydrocyanic Acid; is much used in cough mixtures (P). **Laurocerasus,** used as a substitute for Hydrocyanic Acid in spasmodic coughs (B). **Conium,** supposed to be useful (R); is very useful in spasmodic cough (Wa). **Ipecacuanha,** the fld. extr. for troublesome night-cough (B); in obstinate winter-cough, with wheezing, the wine as spray to fauces, efficacious (R); in coughs of childhood Ipecac is one of the most generally serviceable expectorants we can use (Wa). **Lobelia,** dry cough, continued tickling sensation, even in sleep (P). **Sanguinaria,** combined with Hyoscyamus, in nervous, spasmodic cough (P). **Senega,** as a stimulant expectorant in the cough of chronic bronchitis and subacute chest affections. **Gelsemium,** excessive irritability of the respiratory centre (R); often remarkably relieves convulsive or spasmodic, reflex, nervous coughs (B); **Alum,** internally in spasmodic cough; gr. x to ℥j aquæ as spray, in chronic cough also (R). **Drosera Rotundifolia,** the fluid extr. in ½ teasp. dose to an adult every 2 or 3 hours, of high value when spasm predominates. [See *ante*, page 225.] **Potassium Bromide,** serviceable in various reflex coughs (uterine, renal, etc.), and in cough of phthisis occasionally, it is ameliorative as a gargle (B). **Cubeb,** ʒss–j of the tinct. in half-glass of Linseed tea thrice daily, often cures like a charm the coughs of chronic catarrh, of emphysema, or acute catarrh, or following an attack of influenza (R). **Asafœtida,** Garrod ascribes its value to the sulphur in it (P); very serviceable in after-cough from habit, and in mother's sympathetic whooping-cough (B). **Carbolic Acid,** as spray, a 5 per cent. solution in a steam atomizer will often prevent as well as cure a cough from cold. **Valerian,** in asthmatical and hysterical coughs (P). **Chloroform,** with Morphine and molasses in paroxysmal dry cough; may be painted on throat also (R); in irritable reflex cough the vapor of a teaspoonful of the spirit may be inhaled from the surface of hot water and repeated every five minutes for four or five times (B). **Chloral,** in convulsive coughs, ameliorates symptoms after hypnotic effect (Wa). **Camphor,** equal parts of Camphor and Chloral triturated together are said to allay spasmodic cough when painted over larynx (B). **Glycerite of Tannin,** applied to throat when chronically inflamed and so producing cough; often the case with children (R). **Grindelia,** used in cough of habit and spasmodic cough (B). **Squill,** in catarrhal cough, should not be employed until active inflammation has subsided (Wa); the syrup or vinegar of Squill is the best preparation for cough with tickling in the throat (P). **Cod-liver Oil,** in chronic coughs (R. Wa). **Lactucarium**, the syrup as vehicle in cough-mixtures (B). **Chamomile Oil**, gtt. ij–viij, in coughs due to heightened reflex irritability, especially in hysterical women (P). **Pix**, Tar-water, in winter cough, especially when paroxysmal (R); allays the cough of bronchitis and phthisis (P); the Plaster as rubefacient and counter-irritant in chronic coughs (Wa). The frequency and violence of nervous coughs may be controlled by a determined effort of the patient's will. [Compare BRONCHITIS, PERTUSSIS, PHTHISIS.]

Prescriptions for Cough Mixtures.

For Adults.

℞. Spiritus Etheris Nitrosi, . . ʒ ij.
Vini Ipecac., ... ʒ ss.
Tinct. Opii Deodorat., . . ʒ j.
Syrupi Tolutani, ... *ad* ℥ ij.
M. Sig.—A teaspoonful twice or thrice daily. (*Bowditch.*)

℞. Liq. Magendie,
Spt. Limonis, ... āā ʒ j.
Syr. Ipecac.,
Spt. Lavand. Comp., . . āā ʒ iv.
Syr. Scillæ Comp.,
Syr. Tolutani, ... āā ℥ j.
Syr. Pruni Virgin, . q. s. *ad* ℥ vj.
M. Sig.—A teasp. as required.
Each dose has of Morph. Sulph. gr. $\frac{1}{24}$.

For Children.

℞. Mist. Glycyrrh. Co., . . . ℥ ij.
Syr. Pruni Virginian.,
Syr. Tolutan, ... āā ℥ j.
M. Sig.—Half teaspoonful 3 or 4 times daily for infants, teaspoonful doses at 1 to 2 years, larger doses for older children. (*Potter.*)

℞. Tinct. Opii Deodorat.,
Vini Antimonii, ... āā ʒ ss.
Ext. Valerianæ Fl.,
Syr. Simplicis, ... āā ʒ ij.
Aquæ, ... ℥ jss.
M. Sig.—A teaspoonful every hour or two until cough controlled. For those of 4 years and upwards. (*Meigs & Pepper.*)

Coxalgia.

Barium Chloride, in considerable doses (gr. j–ij) persevered in for a month, thought to be a most valuable remedy in scrofulous diseases of joints (Wa). **Sulphuric Acid**, ʒj ad ℥j Adipis, as ointment, persevered in, has resulted in great benefit; a powerful irritant (Wa). **Counter-irritation**, by blisters around the hip, with perfect rest in the straight posture, Cod-liver Oil, etc. (D). **Ferrous Iodide**, in scrofulous disease of the joints, with Cod-liver Oil and nutritious diet (Wa). **Iodoform**, very successfully used by many continental practitioners in scrofulous diseases of the joints (Wa). **Cod-liver Oil**, the remedy on which most reliance is to be placed (R). [Compare ABSCESS, CARIES, SUPPURATION, SYNOVITIS.]

Croup, Catarrhal.

Aconite, valuable (R. Wa); has been employed with the best results (P); from gtt. ½ to j every half hour, until an impression is made on the fever movement, then every hour or two (B). **Hot Water**, applications beneath the chin and along the whole course of the larynx (Wa). Hot fomentations or turpentine stupe to throat (El); hot bath (95°–102°) in the paroxysm, a good method (M & P). **Potassium Bromide**, locally, a solution by atomization has proved highly efficient in spasmodic croup (Wa). **Lobelia**, has been used with occasional success (P). **Ipecacuanha**, the syrup or fluid extract as an emetic at the outset (El); is a slower emetic than Tartar Emetic (P); the syrup to vomiting during the paroxysm, and ♏v–x every 2 or 3 hours next day (M & P). [Compare LARYNGISMUS STRIDULUS.]

Prescriptions.

℞. Potassii Citratis, ... ʒ j.
Syr. Ipecac., ... ʒ ij.
Tr. Opii Deodorat., ... gtt. xij.
Syr. Simplicis, ... ʒ ij.
Aquæ, ... ℥ jss.
M. Sig.—Teaspoonful every two hours at 2 years of age. In severe form of spasmodic laryngitis. (*M. & P.*)

℞. Tinct. Belladon., ... gtt. iv.
Tinct. Opii Camph., . . . gtt. l.
Pulv. Aluminis, ... gr. vj.
Syr. Acaciæ, ... ℥ ss.
Aquæ, ... ℥ jss.
M. Sig.—Teaspoonful every 2 or 3 hours at 6 months old when cough frequent and harassing. (*M. & P.*)

Croup, Membranous.

Mercury, a remedy of established value, gr. ss–j of Calomel, with gr. ⅛–¼ of Ipecac, according to age, every 2 hours, with local and other general measures, especially the use of a hot (70°–75°) and moist atmosphere (Wa). The Sub-sulphate, given early, is the best emetic, gr. iij–v; Calomel is strongly urged as a laryngeal sedative and aplastic agent, allaying laryngeal spasm and preventing formation of membrane (B). **Alum**, one of the best emetics in this disease, a teasp. in honey or syrup, repeated every ten or fifteen minutes until it operates (M & P); a very useful and non-depressant emetic (B). **Sanguinaria**, by many considered specific, is undoubtedly the best emetic for this disease (P); is too harsh and too uncertain in action (B). **Tartar Emetic**, as an emetic, has established value in croup (Wa); is injurious, too depressant (B). **Potassium Chlorate**, as alkali, after emetics, the most reliable internal remedy, gr. ij–iij every 2 hours to a child of 4 years (M & P). **Ferric Chloride**, may be combined with the preceding, in doses of 3–5 drops of the tincture, at the same age (M & P). **Emetics**, besides the above, are—**Copper Sulphate**, in small frequent doses (R);—**Ipecacuanha**, inferior to Mercury (B); in severe cases, vomiting should be caused 2 or 3 times a day, and should be commenced early (R),—**Apomorphine**, effective, but highly dangerous (B). **Senega**, is considered a valuable auxiliary (P), has been employed (R). **Quinine**, in full doses is highly useful (B). **Sulphurous Acid**, as spray, hourly or more frequently (R). **Tannin**, a 5 per cent. spray, several times a day for 15 or 20 minutes (R). **Hydrogen Dioxide**, the solution 1 to 4 of water copiously sprayed over the nose, throat, mouth, etc., to destroy the membranes and prevent their reproduction; then **Glycozone**, a teasp. in a winegl. of water thrice daily internally, prevents any disturbance of the stomach and regulates the bowels (Edson). **Lactic Acid**, as solvent of membrane (B). **Iodine**, the tincture, externally, affords great relief, and tends to prevent formation of false membranes (Wa). **Water.** Warm bath, hot fomentations or compresses to throat. Watery vapor in room. Steam inhalations, with a few drops of Iodine or Bromine. **Diet.** Water only in small quantities during attack. Supporting diet may be required afterward. **Lime-water**, by vaporization, or inhalations of the vapor of slaking lime for a few minutes in every hour, or some other alkaline solution during the whole treatment (M & P). **Tracheotomy** fully justifiable, 21½ per cent. recovered, out of 1024 operations; should be done when paroxysms become very frequent, and dyspnœa is rather persistent than paroxysmal (M & P). [Compare LARYNGITIS, DIPHTHERIA.]

Prescriptions.

℞. Pulv. Sanguinariæ, ... gr. xx.
Pulv. Ipecac., ... gr. v.
Syr. Ipecac., ... ℥ ij.
M. Sig.—A teasp. every ¼ hour until emesis, then ½ teasp. every hour. (P.)

℞. Acidi Lactici, ... ʒ iijss.
Aq. Destillat., ... ℥ x.
M. Sig.—To be used as a spray, or applied by a mop.
(*London Throat Hospital.*)

Cyanosis.

Amyl Nitrite, by inhalation, often gives marked relief (P). **Quebracho**, in that from asthmatic attacks of consumptives, lessened the cyanosis or entirely relieved it (Röhrer). **Leeching** is of service, in a manner not easily understood (P). **Treatment** must depend on the nature of the lesion or disease giving rise to the cyanotic condition (A).

Cystitis, Acute.

Belladonna, is a good remedy in almost every form of vesical irritation (G); when the vesical mucous membrane is irritable (B); very useful in recent catarrh from chill, with pain (P). **Cantharis**, in large doses causes inflammation of the urinary tract, but gtt. j of the tincture every hour will often relieve vesical catarrh (Smith); in small doses continued, very efficient (B); gtt. j–v of the tincture thrice daily, when bladder is irritable, its sphincter weak, and pain along the urethra (P); may be employed in cystitis with benefit (R); in small doses, the best remedy for acute cystitis. **Aconite**, for febrile symptoms (R. P). **Quinine**, often useful for acute symptoms (B). **Iodoform**, in suppository for painful cystitis (R). **Opium**, a rectal injection of Starch and Laudanum will subdue pain and prevent the frequent micturition (R); Opium is dangerous if kidneys are diseased (P). **Alkalies**, the Citrates and Bicarbonates if urine is highly acid; stop when it becomes alkaline (R). Liquor Potassæ in barley-water or in a decoction of Triticum repens, preferred to all other alkalies; urine must be maintained at a neutral or very slightly acid reaction (Thompson). **Cannabis Indica**, an excellent anodyne in all bladder cases, having specific effect on that organ. **Rest** in horizontal posture, mucilaginous drinks, hot fomentations and hip-baths, from 100° to 110°, laxatives for the bowels, light food. Milk-diet often necessary, especially in children. [Compare BLADDER IRRITABLE, CALCULUS, DYSURIA, ENURESIS, HEMATURIA.]

Prescriptions.

℞. Atropinæ Sulphatis, ... gr. j.
Acidi Acetici, ... gtt. xx.
Alcoholis,
Aquæ, ... aa ℥ss.
M. Sig.—Four drops in a winegl. of water before each meal. (G.)

℞. Pulv. Opii, ... gr. xij.
Camphoræ, ... gr. xxx.
Ext. Belladon., ... gr. iij.
Ol. Theobrom., ... q. s.
M. et div. in supposit. no vj.
Sig.—One at bed-time.

Cystitis, Chronic.

Benzoic Acid, and the Benzoates, in chronic cystitis, from any cause, when urine is alkaline (B); has some balsamic character, and is useful in some cases of chronic cystitis; gr. xxiv at least in the day, in pills made with Glycerin (Thompson). **Sodii Benzoas**, ʒj in Tinct. Gelsemii ʒij–iij, and water to ℥vj, makes an excellent wash for painful cystitis of old men with enlarged prostate; a fluidounce should be warmed and injected, and retained 20 to 30 minutes (Copeland). **Alkalies**, when urine is acid; the Liquor Potassæ, with Hyoscyamus as an anodyne, preferred notwithstanding its chemical incompatibility, to control painful and frequent micturition (Thompson); Bicarbonates or Citrates better, as the strong reaction of liq. potassæ unfits it to be given in doses sufficiently large to affect in any great degree the reaction of the urine (R). **Triticum**, is very efficient as an internal remedy, ℥ij–iv of the rhizome boiled in a quart of water until reduced to a pint, this strained to be taken in four doses in the 24 hours (Thompson); a very useful remedy (Pancoast). **Buchu**, is probably the most efficient of the urino-genital remedies, the fluid extract in doses of ♏x–ʒj (B); the best drug in chronic cystitis, especially when the catarrh implicates the ureters or the kidneys themselves, producing considerable muco-purulent discharge (P). **Uva Ursi**, is decidedly effective (P); is less so than Buchu (B). **Stigmata Maydis**, an infusion, ℥ij ad Oj, wineglassful every 3 or 4 hours, has been used internally with considerable success (Dessein). **Pareira**, considered superior to Uva Ursi (Brodie); often very successful (P). **Chimaphila**, is often very efficient, but is more actively diuretic than the preceding named remedies (B); by many practitioners it is considered the best remedy for chronic cystitis. **Copaiba**, is very useful by virtue of its local action on the mucous membrane, but objectionable for its nauseous taste and resulting gastric disturbance (B). **Cubeb**, is often useful from its stimulating effect (P). **Turpentine**, has been useful in many cases (R, P); when cystitis is due to urethral inflammation or prostatic disease (B). **Juniper**, the oil is indicated under the same conditions as is Turpentine (B). **Eucalyptus**, there is no more efficient remedy in chronic cystitis than this (B); the oxygenated oil of Merck is best in doses of 3 drops on sugar every 6 or 8 hours. **Salicylic Acid**, in large doses, either internally or by injection into the bladder, is most efficient (B); the acid or Salicylates often useful to prevent decomposition (P). **Salol**, proves an efficient disinfectant, as its constituents are excreted with the urine; solutions of 5 to 10 per cent. in Retinol, give gratifying results in subacute cases of obstinate character, where other agents were of no avail; this solution remains in the bladder, in diminishing quantity of course, after 6 or 8 urinations (Desnos). **Camphoric Acid**, in ½ to 3 per cent. solution in hot water, as injection, has cured several cases. **Carbolic Acid**, and Sulpho-carbolates to preserve the urine sweet (R). **Sulphites** will accomplish the same object (B). **Silver Nitrate**, by intra-vesical injection, gr. j ad ℥iv to begin with, increased gradually to gr. ¾ ad ℥j at most (Thompson). Stronger solutions are advocated by Professor Richardson of New Orleans, and Professor Gardiner of McGill College, Montreal. In the writer's experience a solution of gr. v to the ℥ used as a vesical wash, has been promptly efficient in curing many cases which resisted other treatment for months; it sometimes produces serious symptoms, and it is therefore well to have a neutralizing solution of Sodium Chloride on hand for use if required. **Other Injections**, which may be used to wash out the bladder are—Lead Acetate, gr. j to ℥iv of warm water, once daily; Nitric Acid, dilute, ♏j–ij to the ℥j of water; Tannic Acid, gr. j to ℥j; Borax, ℥j in ℥ij of Glycerin and ℥ij of water, of which ℥ss to ℥iv of warm water for one injection; Quinine, gr. j–ij to the ℥j of water, with a drop of Acetic Acid. All injections must be used with great care, not more than ℥ij forced in at once and that very slowly; use flexible catheter, warm solutions, and a rubber injecting-bottle with a long nozzle and stop-cock (Thompson). Washing the bladder is of great value (R). **Evacuation** of the urine, some of which is often retained in the bladder, is a matter of great importance. **Ergotin**, hypodermically, increases the contractile power of the bladder, and enables it to empty itself more perfectly (Langenbeck). **Pichi**, the fluid extract, ♏xx to xxx four times daily, gave excellent results in bad cases of long standing, urine being alkaline, ammoniacal, ropy and purulent (Delamere). [Compare BLADDER IRRITABLE, CALCULUS, DYSURIA, ENURESIS, HEMATURIA.]

Prescriptions.

℞. Uvæ Ursi Fol.,
Pareiræ Radicis, . . . aa ℥j–ij.
Sig.—Boil in 3 pints of water until reduced to a quart, then strain, and take 1 or 2 wineglassfuls 3 or 4 times daily.
(*Thompson.*)

℞. Ext. Tritici Repentis Fluidi,
Syr. Amygdalæ, ... aa ℥ij.
M. Sig.—A dessertsp. in water 5 or 6 times daily. (*Pancoast.*)

℞. Ol. Terebinth., ... ℥ss.
Camphoræ, ... gr. xv.
Extr. Hyoscyami, ... gr. ss.
Fiat massa. Sig.—Take a piece the size of a cherry-stone morning and evening.
(*Chauvel.*)

℞. Quininæ Sulphatis, . . . ʒss.
Acaciæ, ... ʒij.
Morphinæ Sulphatis, . . . gr. jss.
Aquæ, ... q. s. *ad* ℥iij.
M. Sig.—A tablesp. to 3½ ounces of warm water, which inject in 3 parts, daily.

℞. Sodii Boratis, ... ℥j.
Glycerini,
Aquæ, ... aa ℥ij.
M. Sig.—Tablesp. in four ounces of warm water as an injection.

℞. Argenti Nitratis, ... gr. vij.
Aquæ Destillat, ... ℥iijss.
M. Sig.—Injection every third or fourth day after washing the bladder out with warm water. (*Ricord.*)

Cysts.

Iodine, injection very effective in cysts of neck, and sometimes in unilocular ovarian cysts (B); ℥x after tapping (R). **Silver Nitrate**, gtt. v–x of a strong solution (gr. xx ad ʒij), as injection into cystic tumors (wens), after allowing the contents to escape, will cure by setting up adhesive inflammation (B). **Galvano-**

puncture, will permanently occlude cysts of neck (B). **Aurum Chloride**, may sometimes cure ovarian dropsy (B). **Remedies**, internally have all been proved worthless (E).

Deafness.

Quinine, cures some forms, and often causes deafness (Brown-Séquard). **Glycerin**, for dryness of meatus; also to form a film to ruptured tympanum (R); either alone or in combination with Olive Oil (P); effects are temporary (Wa). **Tannin**, the glycerite as application for throat deafness (R. Wa). **Gelsemium**, the tincture, ♏xv–xx, repeated 2 or 3 times a day, is often useful in the treatment of nervous deafness, and seems to have an influence on the organ of hearing similar to that of Nux Vomica on the organ of sight. **Colchicum**, when from gout in ear (A). **Cantharides**, as ointment; gr. xxx ad ℥j Adipis, below and behind the ear bis die, with alterative mercurial treatment, in deafness from thickened tympanum (Wa). **Gargles**, in throat-deafness, are of great value; of Potassium Nitrate, Borax, etc., in sthenic cases; tincture of Capsicum added in nervous forms; of Hydrargyrum Bichloride, when from secondary syphilis (Wa). **Water**, washing in warm water, in deafness from general debility (Toynbee). **Faradization**, of the ear in nervous deafness, in which slight results only to be expected from the treatment (R); demands the utmost caution (Wa). **Collodion**, contractile, applied to the membrana tympani, in deafness from relaxation of the membrane, has exerted a permanently beneficial influence, even in cases of long standing (Wa). **Turpentine**, gtt. xl in ℥ss Glycerin, a few drops into the meatus in deafness depending on deficient secretion of cerumen, results in much benefit (Wa). **Morphine**, gr. ss sprinkled on surface behind the ear denuded by a small blister, has proved curative in chronic deafness, after all other remedies had failed (Wa).

Delirium.

Belladonna, in delirium of typhus and other fevers (R); severe forms of delirium (P). **Hyoscyamus**, in delirium of typhus; mild, less inflammatory form, hallucinations, nervous excitement, little cerebral congestion (P). **Stramonium**, in wild and furious delirium of puerperal mania, with general restlessness and suicidal or destructive tendency (Wa); no drug deserving of more confidence in the greater number of maniacal cases (Cullen). **Opium**, in traumatic delirium, as a rectal injection, combined with Tartar Emetic in fevers, or, better still, Morphine hypoder.; Laudanum in low, muttering delirium (R); is regarded with suspicion (P). **Cannabis Indica**, the extract in doses of gr. ¼–½ in nocturnal delirium occurring in softening of the brain (Wa). **Potassium Bromide**, in delirium resembling delirium tremens (R). **Camphor Monobromide**, useful in rambling delirium (Wa). **Camphor**, in 20-gr. doses, every 2 or 3 hours, especially in low, muttering delirium (R). **Chloral**, in violent delirium of fevers (R). **Antimony**, delirium of fevers (R). [See FEVERS.] **Water**, the cold douche in maniacal delirium; place patient in warm bath during application (R). [Compare CEREBRAL CONGESTION, FEVER, MANIA.]

Delirium Tremens.

Chloral at outset (R); very successful, but dangerous to old drunkards or when heart disease exists (B): the experience of inebriate asylum physicians does not bear out the teaching that chloral is dangerous to old alcoholic cases, it being by them commonly given in 30-grain doses every 3 or 4 hours until sleep is induced, without apparent danger. **Belladonna**, of proven efficacy when congestion of the brain (P); useful for the insomnia when coma vigil, cold surface, cyanosis (B). **Stramonium** can do all that Belladonna can do, and is more powerful (Tr). **Hyoscyamus**, in some forms admirable (P). **Hyoscine**, is a useful drug in delirium tremens, and in other affections in which tremor is a marked symptom (Weatherly). **Opium**, cautiously, if at all (B): as rectal injection, hypodermically, or with spirits; if patient strong, delirium boisterous, and pulse full, add **Tartar Emetic** or **Aconite** (R). **Bromides** in the "horrors" preceding the delirium ʒj every 4 to 6 hours; are of less value in the delirium, and in subsequent attacks (B. R); Ammonium Bromide has been used with very good results (Wa). **Chloroform**, inhalations to procure sleep (R.) Anæsthetics dangerous (B). **Cannabis Indica**, gr. ss–j of extract, one of the least dangerous and most useful hypnotics (P). **Tartar Emetic**, as hypnotic (B); combined with Opium to control mania and insomnia (R). **Capsicum**, to induce sleep in early stages, gr. xx–xxx in a bolus with honey, repeated after three hours (R); in 20–30 gr. doses has remarkable success (P); the tincture in ʒss doses every three hours of great benefit (Wa). **Nux Vomica**, or Strychnine, should be more freely used than it is in alcoholism, and in delirium tremens may be used hypodermically almost to the commencement of tetanic action (Luton). **Arnica**, the tincture is exceptionally serviceable in cases where there is depression (B). **Coffee**, often exceedingly useful (P). **Digitalis**, ʒss of tinct. repeated in 4 to 6 hours (R); a tablesp. of the infusion every 4 hours in pale subjects, anæmia of brain, with effusion and œdema (B); has cured many cases promptly without producing any unfavorable symptoms. Its safety and efficacy are alike questionable (Wa). **Cimicifuga**, an excellent tonic for the nervous system, very successful (P). **Quinine**, with a mineral acid to restore digestion, in the "horrors," and in adynamic states (B); gr. j two or three times daily as a tonic, the best to produce nervous tranquillity (Anstie.) **Sumbul**, very efficient for insomnia (P). **Zinc Phosphide**, gr. jss daily, in divided doses, for many weeks, is used with decided benefit. **Zinc Oxide**, is of essential benefit as a nerve tonic and sedative, gr. ij–viij, twice daily, gradually increased to the higher dose named (Wa). **Lupulin**, the tinct. or oleo-resin, useful in mild cases as stomachic tonic and cerebral sedative (B). **Ammonium Carbonate**, when anæmia of brain and feeble heart-action (B). **Conium**, combined with Opium, useful (P). **Alcohol**, of undoubted use where failure of stomach to appropriate food (B); is best omitted entirely from the treatment, the experience in inebriate asylums showing that cases recover more rapidly and surely without alcohol. **Water**, about 60° with ice to head, to reduce temperature in the hyperpyrexia (R). **Treatment**, should tend to nourishment, and establishing of digestion. Concentrated liquid nourishment, with moderate use of stimulants (H). **Diet and Hygiene.** The immediate source of danger is exhaustion, hence animalized and nutritious, digestible diet in fluid form, small quantities frequently repeated; beef-tea, soups, yolk of eggs, warm milk, cocoa, cayenne pepper or stimulants in soups; coffee, to still nervous excitement; hot baths and wet pack to eliminate the poison. A quiet, dark room, sleep a necessity, often induced by Belladonna. [Compare ALCOHOLISM, also page 101, *ante*, for Treatment of Delirium Tremens.]

Prescriptions.

℞. Tinct. Capsici,
Ext. Lupulini Fl., . . āā ℥j.
Mucil. Acaciæ, ... ℥ss.
Aquæ Cinnamomi, . . . ℥jss.
M. Sig.—Dessertsp. as required for the wakefulness and excitement which precedes an attack.

℞. Chloralis Hydrat., . . . ʒvj.
Ext. Conii Fl., ... ʒiij.
Ext. Hyoscyami Fl., . . . ʒiv.
Mucil. Acaciæ, ... ℥ij.
Aquæ Menth. Virid., . *ad* ℥ij.
M. Sig.—Teaspoonful in water after each meal.

Dementia Paralytica.

Physostigma, has seemed to retard the progress of the disease in some few cases (B). **Paraldehyde**, in one or two drachm doses as a calmative and hypnotic, is as efficient as Chloral and without danger (B). **Tonics**, may be used, though treatment is only palliative; Calcium Lacto-phosphate, Cod-liver Oil, etc. No remedies have hitherto been of any avail (B).

Dengue.

Emetics and Purgatives are indicated at the outset, also free diaphoresis. Treatment is entirely symptomatic. **Quinine**, in five-grain doses every four or five hours for the fever (Da C); should be given more for its tonic than for its antiperiodic effects (Fayrer). **Opium**, in some form for the pains and nocturnal restlessness. **Salicylic Acid** or Salicylates for the pains in joints and muscles. **Carbolic Acid**, as lotion, a 5 per cent. solution, for the itching, or Camphorated Oil. **Belladonna**, confers great relief in this disease, ♏x–xv of the tincture may be given every hour for two or three doses (Fayrer). **Aconite**, with salines and Nitrous Ether, during the pyrexia, which may be so high that cold sponging or the cold bath may be required. **Bitter Tonics**, as Gentian or Calumba, with Quinine and a mineral acid or Strychnine during convalescence.

Prescriptions.

℞. Tinct. Colchici Sem., . . ʒ ij.
Spt. Ætheris Nitrosi, . . ʒ iv.
Potassii Nitratis, ... gr. xl.
Aquæ, ... *ad* ℥ vj.

M. Sig.—Tablespoonful well diluted every hour or two until profuse diaphoresis occurs. For relief of the violent pains.

℞. Tinct. Aconiti, ... ♏xvj.
Morph. Acetatis, ... gr. ij.
Spt. Ætheris Nitrosi, . ʒ iv.
Liq. Ammon. Acetat., . . ℥ iij.
Aquæ Camphoræ, . . *ad* ℥ iv.

M. Sig.—Teasp. to dessertsp. according to age, every hour for three hours, then every two hours.

Dentition.

Belladonna, in convulsions of dentition, rarely fails to relieve (P). **Hyoscyamus**, to alleviate pain and subdue irritation; better than Opium for children (P). **Chamomilla**, ♏j of the tincture every ¼ hour, an excellent sedative for children (A. A. Smith). **Potassium Bromide** for irritability and convulsions in teething (R). **Dulcamara**, the infusion, in diarrhœa of dentition, quickly checks symptoms (P). **Calumba**, excellent for the accompanying vomiting and diarrhœa (P). **Hypophosphites**, of Calcium or Sodium, as a general tonic, are highly recommended (R). **Rhubarb**, with Soda, internally for the aphthæ, with perfect cleanliness of the mouth and a wash of Borax or Potassium Chlorate in Glycerin, gr. x ad ℥j (E. Smith). **Castor Oil**, for the diarrhœa of detention to clear out the bowels, then a mixture of Chalk and Catechu, or Zinc Oxide, gr. j to the dose, with gtt. j of Laudanum if required to reduce peristalsis (E. Smith). **Lancing the Gums** to relieve tension when gum is actually swollen; should not be indulged in indiscriminately.

Prescriptions.

℞. Potassii Bromidi, ... ʒj.
Olei Anisi, ... ♏ij.
Mucil. Acaciæ,
Aq. Menth. Pip., . . . āā ℥j.

M. Sig.—Teasp. every half-hour until relieved. (B.)

℞. Sodii Bromidi,
Sodii Bicarbonat.,
Chloralis, ... āā gr. xx.
Aq. Menth. Viridis, . . . ℥jss.
Syr. Zingiberis, ... ʒss.

M. Sig.—Half-teasp. to desertsp., according to age.

Diabetes Insipidus.

Opium, large doses necessary, gr. vj–xij a day (B); combined with Gallic Acid, the most generally useful remedy (W). **Ergot** has cured many cases, the fluid extract in doses of ʒss–j thrice daily (Da C); one of the most efficient remedies (B): is the most useful remedy (R). **Iron and Strychnine** are very useful for tonic effects (Da C). **Valerian** restrains the flow of urine but does not cure (B). **Muscarine** has been used with apparent success (R). **Potassium Iodide** is curative in many cases of syphilitic origin (B). **Alum** has produced good results (B). **Jaborandi**, used successfully to reduce the quantity of urine (B). **Valerian**, large, increasing doses (R). **Krameria** lessens the quantity of urine (P). **Diet**, a dry diet beneficial (B).

Prescriptions.

℞. Extr. Ergotæ Fl., ... ℥iij.
Sig.—Half-teasp. thrice daily, gradually increased to a dessertspoonful.

℞. Acidi Gallici, ... ʒiij.
Div. in chartulas xij.
Sig.—One thrice daily.

Diabetes Mellitus.

Phosphoric Acid, largely diluted, assuages the inordinate thirst; in one case it seemed to act as a curative agent (Wa). **Arsenic**, when from faulty assimilation, in diabetes of hepatic origin, and in thin subjects (B); the Bromide is credited with several cures. The Lithiated Arsenical Water, used in 70 cases with cure of 96 per cent. (Martineau). [See *infra* for formulæ.] **Morphine**, is very efficient in reducing sugar when used by mouth, but is of no value when employed subcutaneously, even in the same case (Bruce). **Opium** in large doses (gr. vj-xij a day), ameliorative. **Codeine**, is especially serviceable (B); abates thirst and controls appetite (R); its value much disputed (P); is of great value in many cases (W); is one of the best remedies in doses of gr. ¼-½ (Da C). **Jambul**, has given favorable results after abandoning all the usual remedies (Lawrence); in 2 severe cases, in which 7 and 3 per cent. of glucose were excreted, the urine was brought back to normal by preparations of the bark, and kept so for two years (Vix); should be given after meals, in water or wine sweetened with Saccharin. **Sodium Salicylate** has cured when all other drugs have failed (R); gr. x-xv in compound spirit of Lavender, and water, thrice daily, is my favorite remedy (Da C). **Ergot** is one of the useful drugs (Da C); decreases the quantity of sugar and the volume of urine. **Potassium Bromide**, gr. xx ter die, cured two cases in six weeks (Begbie); useless (Da C). **Krameria** lessens the quantity of urine (P). **Phosphates**, to avert failure of nutrition (B). **Glycerin** has produced good results (B); is used in place of sugar (W). **Aurum.** The Chloride is one of the promising remedies (B). The Bromide of Gold and Arsenic caused so much improvement in one case that he was accepted as a good risk by one of the foremost life insurance companies (E. A. Wood), **Iodoform**, in doses of gr. j-ij, rapidly reduced the sugar and caused its disappearance in 4 or 5 days, in five cases, without any change in diet being made (Moleschott); the amount of testimony for its value in this disease is quite considerable (B). **Iodol**, can be advantageously substituted for Iodoform in all the diseases to which the latter is applicable (B).

Oxygen, as oxygenated water, instead of carbonated, very successfully used (Le Blond). **Uranium Nitrate**, gr. i-iij, thrice daily has caused decided improvement in several cases (Hughes). **Alkalies** are used on theoretical grounds, but have not produced much benefit; one case apparently cured by the diligent use of Ammonium Carbonate (B); are serviceable (Da C); alkaline mineral waters for diabetes of hepatic origin and in obese subjects, are extremely useful (B). **Salines**, a warm solution of the Phosphate and Chloride of Sodium, by intravenous injection, in diabetic coma, produced astonishing results in one case (B). **Aloin**, for the accompanying constipation (Da C). **Nux Vomica**, or Strychnine, is generally beneficial. **Calcium Lactophosphate** benefits the thin, nervous type of diabetic remarkably (B). **Alkaline Waters**, when of hepatic origin and in obese subjects. Tepid drinks in the intense thirst (B). **Diet and Hygiene** are of the utmost importance. Avoid amylaceous food, and everything containing sugar, especially ordinary bread; use fresh, nutritious animal food, with bread of bran or almonds. Warm baths, warm climate, flannel underclothing. **Peanuts**, are an excellent article of food for diabetics, being rich in albumen, of which they contain 47 per cent., together with 19 per cent. of fat and non-nitrogenous extractive matters (Furbringer).

Milk-cure, by skimmed milk, very successful, 6 to 10 pints daily. *No other food* for six weeks, then animal food. *Caution*,—the urine of patients taking Salicylic Acid gives the reaction of sugar with Trommer's test (R). **Saccharin**, as a substitute for sugar, does well for sweetening purposes, but is not a nutrient, and has no influence on the disease.

Levulose, is a saccharine food which can be taken freely and without any injury by diabetic patients; it most nearly approaches the ideal carbohydrate food indicated in diabetes (Hebra); it is assimilated well and nearly all oxidized by diabetics, who are able to partake freely of it in comparatively large quantity (Ebstein). Sugar and sugar-forming food constitutes more than half of the nourishment needed by a healthy person, and it is the imperative duty of the physician to furnish a diabetic with a moderate amount thereof, to prevent death from inanition, and to lessen the danger of diabetic coma which is induced by a diet of meat alone (Leyden). Levulose, formerly very high in price, is now sold at a reasonable rate under the name Diabetin.

Prescriptions.

℞. Liq. Potassii Arsenitis, . . ʒjss.
Tinct. Opii Deodorat., . . ʒv.
Syrupi Zingiberis, ... ℥j.
Aquæ Cinnamomi, q. s. . *ad* ℥iv.
M. Sig.—Teasp. thrice daily.

℞. Lithii Carbonat., ... gr. xl.
Sodii Arsenat., ... gr. j.
Ext. Gentianæ, ... gr. xx.
Ft. pil. no. xxv. Sig—One night and morning until sugar disappears from urine. More convenient than Martineau's liquid. (*Vigier*.)

℞. Codeinæ, ... gr. viij.
Syrupi, et Aquæ, ... ℥ij.
M. Sig.—Half teasp. thrice daily, gradually increased up to two teaspoonfuls. (*Pavy*.)

℞. Sodii Arsenat., ... gr. iij.
Aquæ, ... Oj.
A tablesp. of this with Lithii Carbonat. gr. iij, into a quart siphon filled with carbonated water, which is to be taken freely, as daily beverage. (*Martineau*.)

Diarrhœa.

Aconite, when from chill, with high fever, cutting abdominal pains (P). **Antipyrin**, in doses of gr. ss to gr. jss, has rendered signal service in the diarrhœa of children. **Mercury**: Calomel for infantile diarrhœa (ileo-colitis), gr. $\frac{1}{20}$ to $\frac{1}{12}$ every half-hour (B); the Bichloride, gr. j in ℥x aquæ, a teasp. frequently, in acute or chronic diarrhœa of adults or children with slimy, bloody stools, pain and straining; gr. $\frac{1}{6}$ of gray powder hourly, or gr. $\frac{1}{100}$ of Corrosive Sublimate every two or three hours (R); gr. j of the Bichloride to a quart of water, of this a teasp. every hour in mucous diarrhœa (Smith). **Camphor**, in summer diarrhœa and the preliminary diarrhœa of Asiatic Cholera (B); when from effluvia of drains or exposure to cold (R); useful in many forms (P). **Ipecacuanha**, in summer diarrhœa and dysentery of children with greenish stools (B); hourly drop-doses of the wine especially if vomiting (R); when from nervous irritation, especially in young children (P). **Dulcamara**, in diarrhœa of children from damp, or with dentition (P). **Pulsatilla**, dyspeptic diarrhœa, mucous discharges, active piles (P). **Quinine**, in periodic diarrhœa, with dysentery and jaundice (B). **Veratrum Album**, in the vomiting and purging of summer diarrhœa (R). **Podophyllum**, in chronic, with high-colored motions and cutting pains, also, in morning diarrhœa (R); gr. $\frac{1}{20}$ to $\frac{1}{10}$, with occasional doses of Aconite, for vomiting and diarrhœa of gastro-enteritis and prolapse of rectum (P). **Chamomile**, an infusion in summer diarrhœa of adults, or in that of dentition (R); the Oil in diarrhœa of children, especially from worms (P). **Arsenic**, for evacuation of undigested food (B); gtt. j of Liq. Arsenicalis before meals when diarrhœa excited by food; also in chronic and membranous forms (R). **Nux Vomica**, a very useful adjunct to other remedies (B); often of much service in epidemic diarrhœa (P). **Sulphuric Acid**, in summer and choleraic diarrhœa; small doses in the chronic form and in the straining diarrhœa of children (R). **Calcium Carbonate**, in later stages, as Chalk-mixture in diarrhœa of typhoid or phthisis (R). **Zinc Salts**, very efficient in summer diarrhœa of children (B). **Rhubarb**, in early stages to get rid of irritant, afterward to check the diarrhœa (R); when torrefied it has no purgative power, but its astringency is retained. **Rumex**, in morning diarrhœa (R). **Arnica** checks exhausting diarrhœa with great certainty (P). **Silver Nitrate**, in diarrhœa of children, with white, pasty, and offensive stools; combined with Opium the most effective remedy for that of phthisis and typhoid (B). **Mineral Acids**, in painless, watery stools, light color and alkaline (B). **Alkalies**, Mistura Cretæ in sour-smelling stools (B); Sodium, Potassium or Magnesium Bicarbonates when acid canal (R). **Lead Acetate** is excellent in all forms (B); with Opium as an injection (R). **Bismuth Subnitrate**, is effective, requires large doses; gr. xxx–lx every 3 or 4 hours; is especially indicated when desire for stool is felt immediately after eating (B); gr. j hourly with milk, sometimes with gr. ⅙ of gray powder, in various forms of infantile diarrhœa (R). **Bismuth and Ammonium Citrate**, in diarrhœa without irritation, but rather relaxation of the intestinal mucous membrane. **Bismuth Salicylate**, is highly praised in the diarrhœa of phthisis and in that of typhoid. **Salol**, is very efficient in acute diarrhœa due to action of microbes. **Resorcin**, gives very marked satisfaction in the diarrhœa of children. **Opium**, commonly used, but is best in watery evacuations, combined with mineral acids or Lead Acetate (B); as injection with Starch in severe cases (R). **Calumba**, when not inflammatory (B). **Coto Bark**, the fluid ext. or Cotoin, is one of the new remedies for atonic diarrhœa. **Purgatives, Saline**, a teasp. of Epsom salts (Magnes. Sulph.) in a wineglass of water every three hours when intestinal inflam'n (B). **Copper Sulphate**, the most effective astringent in chronic diarrhœa and that of phthisis (B). **Ergot**, in persistent, chronic diarrhœa (B). **Iodine**, one or two drops of tinct. in diarrhœa from atony of mucous membrane (B). **Tannic Acid**, very useful in profuse and chronic diarrhœa; Stillé advises Tannic Acid and milk diet for chronic diarrhœa and dysentery (B). **Thymol**, gr. xx to ʒij in 24 hours in divided doses for adults, is a very efficient internal antiseptic in all cases of diarrhœa, especially that of phthisis, teething children, chronic diarrhœa, etc. (Martini). **Carbolic Acid**, very useful in fermentative diarrhœas, especially combined with Bismuth in cholera nostras and cholera infantum (B). **Diet.** Cool or cold, light, bland food; gruel, rice, arrowroot, whey, barley-water, in recent cases; in chronic cases the most digestible but nutritious food, as fresh fish, game, raw eggs, rice, mucilaginous drinks; milk and Lime-water or Soda-water very useful; also raw meat pulp. Avoid beef, pork, veal, and much starchy food. [Compare DYSENTERY, CHOLERA.]

Prescriptions.

℞. Bismuthi Subnit., ... ʒj–ij.
Pepsini Saccharat., . . . ʒss.
Zinci Oxidi, ... gr. vj–xij.
Trit. et div. in chartulas xij.
Sig.—One every four hours in summer diarrhœa of children.

℞. Sodii Bromidi, ... ʒss.
Mucil. Acaciæ,
Aquæ Puræ, . . āā q. s. *ad* ℥ij.
M. Sig.—Teasp. every three hours in the diarrhœa of dentition, for child less than a year old. (*A. A. Smith.*)

℞. Zinci Sulphatis,
Pulv. Opii,
Pulv. Ipecac., ... āā gr. xij.
M. Fiant pil. no. xij. Sig.—One 3 or 4 times daily in chronic diarrhœa of adults.

℞. Tinct. Opii Camph.,
Tinct. Catechu, ... āā ʒiij.
Mist. Cretæ, ... ℥x.
M. Sig.—A teasp. four or five times daily for children.

℞. Spt. Ætheris Co.,
Tinct. Opii Camph., . . āā ℥j.
Syr. Simplicis, ... ℥ij.
M. Sig.—Dessertsp. after each movement.

℞. Cupri Sulphat., ... gr. j.
Morph. Sulphat., ... gr. ij.
Quininæ Sulph., ... gr. xxiv.
Fiant pil. no. xij. Sig.—One pill thrice daily.

℞. Tinct. Opii Deod., ... ʒj.
Tinct. Calumbæ, . . . *ad* ℥ij.
M. Sig.—Teasp. in a winegl. of water before meals.

℞. Zinci Oxidi, ... gr. xvij.
Sodii Bicarb., ... gr. viij.
M. et. div. in chartulas iv.
Sig.—One every 6 hours.

℞. Plumbi Acetat., ... gr. xx.
Pulv. Opii, ... gr. x.
Fiat massa, et, div. in pil. x.
Sig.—One twice daily.

℞. Ac. Nitrici Diluti, ... ʒij.
Tinct. Camphoræ,
Tinct. Opii, ... āā ʒj.
Syr. Zingiberis, ... ℥iv.
Aq. Menthæ Pip., . *ad* ℥vj.
M. Sig.—Tablesp. doses to be used after a cathartic. (*Hope's Mixture modified by Thompson.*)

℞. Tinct. Opii Camph.,
Syr. Rhei Aromat., . . āā ℥ss.
Aquæ Calcis, ... *ad* ℥ij.
M. Sig.—A teasp. for children.

Diphtheria.

Mercury, the Corrosive Chloride, gr. $\frac{1}{20}$–$\frac{1}{8}$ every 2 or 3 hours, has given me most success, with Thymol or Boric Acid gargle; and Potassium Chlorate, Iron and Quinine together, where the membrane is not spreading (Da C.); gr. jss in ℥iv of Glycerin and water, of which ʒj every ½ hour for 6 doses, then every hour night and day, to a child of 4 years (Grant-Bey); locally very efficient, gr. ij to Oj of water, applied on a cotton swab, which should be burned after one using; this hourly night and day (Oatman). **Hydrargyrum Cyanide,** in solution of gr. $\frac{1}{10}$ to the ℥, of which a teasp. every ½ hour day and night to older children and adults, with a gargle of the same solution (Sellden); gr. $\frac{1}{64}$–$\frac{1}{48}$, according to age, every hour or two (Erichsen); gr. $\frac{1}{7}$ in ℥iv of water, of which ʒj to iv as per age every hour (Schultz); used by homœopaths in Berlin almost entirely, sometimes alternated with Apis, but most efficacious alone; table of 484 cases so treated, with 28 deaths. (*Brit. Jour. Homœop.*, 1884, p. 382). **Calomel** is next in importance to Quinine and Iron, has proved successful in cases where other means failed, gr. ⅛–¼ every 3 hours, with a little Dover's powder (Da C); checks plastic exudation, its use limited to children of good constitution, with sthenic symptoms; gr. ½ to j every 2 or 3 hours with or without Dover's powder (gr. j) or Ipecac (gr. j) till bowels become relaxed, with greenish stools (Wa); gr. v repeated boldly every hour to ʒiv, for a child of 3 years, until the stools appear like polyps in water-troughs, gelatinous, and of a bright, dark-green hue,—then a dose of Castor Oil if salivation is feared (Reiter); the safest and most efficient germicide with which we can saturate the system; nothing like it in diphtheria,—gr. ⅙–⅓ every hour, even gr. j every 2 hours has no bad effects, no salivation (Fowler).

Belladonna, an excellent remedy; if given early will abort the exudation and later is useful to sustain the heart (B); especially when throat and tonsils acutely inflamed and much swollen (R). **Pilocarpine,** used in 80 cases without a single death; produces free salivary discharge but is depressant to the heart (Guttmann). Many opinions for and against it; is decidedly injurious in adynamic cases (B). **Quinine,** in tonic doses recommended from my experience (Da C); when headache with high temperature, vomiting, and symptoms of septic poisoning, then in full doses (Wa); is most useful after serious symptoms have abated, then with Iron and a mineral acid (Mackenzie). **Arsenic,** in medicinal doses for malignant cases, or when sloughing of Throat (R); the Iodide, in doses of gr. $\frac{1}{20}$ every hour or so, (see under THROAT, SORE), an excellent remedy for the so-called diphtheritic sore throat. **Calcium Chlorate,** solution locally as lotion for the mouth; considered almost specific by some; its chief utility is in removing fetor; may influence germs (R). **Potassium Chlorate,** grain-doses every ½ hour (Smith); is more largely used than any remedy, both internally and locally (B); in full doses with Liq. Cinchonæ, seems to be of service in some cases (Wa). **Carbolic Acid,** as spray, a 5 per cent. solution in the atomizer cup; locally to the fauces, to remove fetor and destroy disease-germs (B); the strong acid in Glycerin as caustic on a mop or brush (W); with Iodine internally to prevent systemic infection (B). **Sodium Sulpho-carbolate,** internally, has been found useful, in lieu of Carbolic Acid (Wa). **Salicylic Acid,** locally and internally (gr. x), has produced good results (B). **Sulphurous Acid,** the gas, recommended by a royal commission in Victoria, as a means of arresting the disease; crude sulphur burned in the room, all apertures being closed (R): in full and frequent doses, causes rapid disappearance of the exudation, and improvement in the general condition; ʒj every ½ hour to an adult in severe cases, in ordinary ones every two hours: an 8-ounce mixture should have 2 or 3 ounces of syrup, and should be given in milk to very young children (Snow). **Sodium Sulphite,** ʒj to ℥j aquæ, locally, an easily managed application (B); an injection for nares in nasal diphtheria (Da C). [See formula below.] **Sodium Hyposulphite,** in solution of ʒj to ℥ij of water, of which hourly doses of ʒj, to be retained in throat several minutes before being swallowed, an excellent local and constitutional remedy, which may also be used by a brush or spray to the throat, and by a syringe to the nares (Fruitnight). **Sodium Benzoate,** is highly efficient, 75 to 100 grains daily, according to age, also used locally (B).

Lime Water, dissolves false membrane; the vapor of slacking lime inhaled; or, better, Lime-water by atomizer to back of fauces while patient respires deeply (W). **Ferric Chloride,** as solution painted on or applied by spray to the throat (R): of no advantage locally, internally may serve by supporting the organism (B); tinct. of the Chloride, gtt. xx every 2 or 3 hours; or better the Perchloride, gr. ½ to j every 2 hours in syrup and water, is easier to take and doesn't hurt the throat (Da C). **Hydrogen Dioxide,** the solution, as spray or gargle, is a very useful application, and may be diluted with 3 to 4 parts of water; is much more powerful against young bacilli of diphtheria than against those of two days' old cultures, and hence its therapeutic value is especially available at the very outset of the disease, and as a prophylactic during epidemics thereof (Traugott). **Glycozone** internally, a tablesp. in a winegl. of water every 3 hours, has an excellent effect (Edson).

Tartaric Acid, locally converts membrane into a gelatinous mass, easily expelled (Vidal). **Thymol,** gr. xx to the ℥ of water, with a little Glycerin, is the best gargle; may need weakening (Da C). **Boracic Acid,** in solution, is next best as gargle (Da C). **Alum and Sulphur,** equal parts, powdered and blown into the throat at moment of deep inspiration, as often as asphyxia is threatened, has been found efficient (Jones). **Trypsin,** is a good solvent of the false membrane; of all remedies used with the spray-atomizer, it has given me the largest percentage of recoveries (Fruitnight). **Chinolin,** a 5 per cent. solution painted over the affected parts with great advantage (Seifert); the tartrate in 10-grain doses internally (B). **Bromine,** the vapor by inhalation, is useful (Wa); a $\frac{1}{100}$ solution in distilled water, of which gtt. j–iij every ½ hour in a teasp. of sweetened water, using a glass spoon; and a saucer full of Bromine Water in the room, renewed every 12 hours, has seemed to be extremely efficient in a number of cases. **Iodine** as inhalation frequently [See formula below]; with use the solution may be increased to ℥ss at each inhalation (R). **Potassium Permanganate,** gr. ½ in distilled water, internally, and also used locally, is of undoubted benefit (B); is credited with brilliant results even in malignant cases. **Sanguinaria,** the best emetic, and by many is considered specific in this disease (P). [See formula below.] **Lactic Acid,** ʒiijss to ℥x of distilled water, as gargle, on mop or by spray, to dissolve membrane (B). **Tannin,** a 5 per cent. solution as spray (R). **Alcohol,** is probably as good a local antiseptic as any; diluted with equal parts of water, by hand-ball atomizer every ½ hour; is the prince of antiseptics, and the most perfect and reliable medicine in diphtheria of which we have any knowledge (Hills). **Stimulation,** freely, the essential part of the treatment; infants are not injuriously affected by even teasp. doses of whiskey every ½ hour: stimulate for effect and not by dose; those cases do best which are stimulated freely and early (Da C). There is more danger from giving too little alcohol than from too much; a three-year-old child can comfortably take ℥j–℥v of Cognac, or gr. xv of Musk or Camphor, or gr. xv–ʒj of Ammonium Carbonate in 24 hours; in the septic form especially, the intoxicating action of Alcohol is out of the question; young children with general sepsis began to improve when their ℥iv of brandy were increased to ℥xvj daily (Jacobi). **Turpentine,** ʒj of the oil thrice daily, with ♏iv of Spiritus Ætheris as a corrective, at the same time using ice-bags, and a gargle of Potas. Chlorate solution, and internally ½-ounce doses every 2 hours of a 2 per cent. solution of Sodium Salicylate (Roesse, Baruch). **Tar and Turpentine** vapor, made by burning in the room Coal-tar 7 parts to Ol. Terebinth. 3 (Delthil). **Methylene Blue,** was used with success after losing cases by other treatment; even in simple non-diphtheritic ulceration of the throat, patients would, after one or two applications of the solution, express themselves with delight as being cured (Rose). **Chlorine-water,** tablesp. doses internally and as a gargle, highly efficient. **Cubeb,** very efficient in the catarrhal forms of diphtheria (Robinson); the freshly ground berries in large doses in early stages of the disease, a very successful treatment (Trideau). **Water.** Ice in the mouth, and the wet pack to the throat are extremely serviceable (B); Ice sucked, especially at commencement, and continued until the disease declines (R); Ice packed in bladders or thin india-rubber bags, to the throat (W). **Aliment.** Good foods, wines or brandy necessary from the start to maintain the patient's strength (R); a teasp. of glycerin every 3 or 4 hours, plenty of good soup and wine, nutritive enemata, are necessary to sustain system. Moist inhalations. Temp. of room 68° Fah. Removal from the house wherein attacked is advisable. Ice very grateful to the patient. **Tracheotomy,** only in extremis (R); is not successful in diphtheria, though very much so in membranous croup (Da C). **Intubation of the Larynx,** as an alternative to tracheotomy, is enthusiastically advocated by many operators. **Strychnine,** hypodermically, for the subsequent paralyses (R).

Prescriptions.

℞. Hydrarg. Chlor. Corros., . gr. jss.
Glycerini, ... ℥j.
Aquæ Destillat., ... ℥iij.
M. Sig.—A teasp. every ½ hour for 6 doses, then every hour night and day to a child of four years. Also,—

℞. Ung. Iodoformi, 1 in 10, rubbed in over swollen glands every 3 hours.
(*Grant-Bey.*)

℞. Thymol, ... ʒj.
Glycerini, ... ℥j.
Aquæ, ... ℥iij.
M. Sig.—Gargle. (*Da Costa.*)

℞. Pulv. Potass. Chlorat., . . ʒj.
Ac. Hydrochlor., ... ʒij.
Mix in a strong pint bottle, cork until effervescence ceases. Add ℥xvj of Water, ℥j at a time, shaking at each time. Cork tightly. Paint the bottle.
Sig.—Chlorine-water. A tablesp. or two to be taken frequently, according to age.

℞. Potassii Chloratis, ... gr. xl.
Syrupi Simplicis, (calid.) . ℥ijss.
Solve, et adde—
Ac. Sulphurici Aromat.,
Tinct. Ferri Chloridi, . āā ʒj.
M. Sig.—Teasp. doses for adults, every 2 to 4 hours, reduced as improvement advances, but kept up throughout disease.

℞. Tinct. Ferri Chloridi, . . ℥j.
Syrupi Tolutani,
Liq. Potassi Citratis, . āā ℥ijss.
M. Sig.—Teasp. to dessertsp. according to age, every 3 hours, ʒj = ♏x of the tincture. (*Anderson.*)

℞. Hydrarg. Chlor. Corros., gr. j, may be added to the above formula, which should then be given in teasp. doses.

℞. Sodii Sulphit., ... ʒiij.
Glycerini, ... ℥ij.
Aquæ, ... q.s. *ad* ℥iv.
M. Sig.—Nasal injection. (*Da Costa.*)

℞. Tinct. Ferri Chloridi, . . ℥j.
Potassii Chloratis, ... ℥ss.
Misce et adde—
Aquæ, ... q. s. *ad* ℥viij.
Sig.—Gargle. (*Jacobi.*)

For the chemistry of this combination see under CHLORUM, *ante*, page 190. Glycerin should not be added, as in Dr. Jacobi's original ℞, which makes a mixture which may explode.

℞. Ac. Tartarici, ... ℥j.
Glycerini, ... ℥jss.
Aquæ Menth. Pip., . . . *ad* ℥iv.
M. Sig.—Gargle frequently. (*Vidal.*)

Dropsy.

Arsenic, in dropsy from feebleness of heart, and in old age (B); swelled feet from debility (R). **Digitalis**, one of the best remedies, esp. in renal dropsy from acute desquamative nephritis; the infusion in doses of ℥ss (B); the fresh infusion best for heart disease, esp. when tricuspid regurgitation (R); induces striking effects in cardiac dropsy, when scanty urine and venous engorgement; has high rank as a diuretic (P). **Apocynum Cannabinum**, actively diuretic (P). **Diuretin** has been employed with marked benefit in both cardiac and renal dropsy, in hepatic cirrhosis, and in various diseases of the heart and kidneys accompanied by œdema: gr. xv several times daily, in aqueous solution, avoiding acids or acid vegetable juices. **Caffeine**, the Citrate in 5-grain doses is eminently diuretic. **Hydrargyrum**, a classical pill in dropsy with dyspnœa from cardiac disease is the combination of Dr. Baillie, containing Mercury, Digitalis, and Squill. (See formula below.) Calomel in doses of gr. ss–ij is eminently diuretic, especially in cardiac dropsy; but by many it is thought to act by aiding the action of other diuretics. **Bryonia**, as a drastic purgative and diuretic; care necessary as it depresses the heart; the infusion best (P). **Hellebore**, the tinct. in doses of gtt. v–xv, every 2 or 3 hours, very successful in dropsical effusions, especially in general anasarca after scarlatina (P). **Senega**, as a diuretic when dropsy is dependent on kidney disease; has been praised (P). **Chimaphila**, is useful as a diuretic in renal dropsy esp. when with loss of appetite and debility (P); may be substituted for Scoparius (B). **Juniper**, largely used as a diuretic in cardiac and renal dropsy (B); esteemed in post-scarlatinal dropsy (R). **Iron**, purgative chalybeate waters (B): the Liquor Ferri et Ammonii Acetatis (Basham's Mixture), in anæmic dropsy (Da C). **Pilocarpus**, very valuable in renal dropsy when secretion of urine is much reduced or suppressed (B). **Jalap**, the compound Jalap powder, gr. xv–xx, with ʒiij of Potas. Bitart. and a little Ginger, early in the morning, 2 or 3 times a week; no hydragogue superior, in dropsy from Bright's disease (Wa). **Turpentine**, controls dropsy with albuminous urine, from non-desq. renal disease; gtt. ss. every 2 to 4 hours (P). **Colchicum**, as a hydragogue in hepatic and cardiac dropsy when patient is vigorous, also in post-scarlatinal dropsy (B). **Scoparius**, esteemed by English physicians (B); is most useful in cardiac dropsy: Cullen found it the most certain diuretic. Diluents should be freely used with it (P). **Squill**, in cardiac dropsy; cautiously if from kidney disease; if anæmic add Iron (R). **Taraxacum**, is occasionally used as a diuretic, with limited utility (B). **Copaiba**, gives good results, especially in Ascites, which see for formula (B). **Potassium Bitartrate and Acetate**, are very certain as diuretics when largely diluted with water, as "Cream-of-tartar lemonade:" Indicated in desquamative nephritis, and general dropsy from valvular disease of the heart (R). **Elaterium**, of unquestionable value as a derivative in many passive forms of dropsy; though many fear it (P). **Acupuncture**, or better still, incisions from ¼ to an inch long, one over each external malleolus generally sufficient. A hot sponge, moist with weak Carbolic Acid solution kept to incisions (R). **Aliment**, dry diet is of advantage in dropsy of serous cavities (B); should be light in acute dropsies; in chronic nourishing. Water not injurious but beneficial as drink. Warm baths, Hollands gin in small doses, tapping for alleviation in incurable cases. A moderately warm, dry atmosphere. Skim-milk diet said to be of great value in renal dropsy. [Compare ASCITES, HYDROCELE, HYDROCEPHALUS, HYDROTHORAX, etc.]

Prescriptions.

℞. Vini Colchici Seminis, . . ℥ss.
Liq. Ammonii Acetat., . . ℥ijss.
Infusi Petroselini, ... ℥v.
M. Sig.—Teasp. every 4 hours. An excellent diuretic, esp. adapted to dropsy of scarlatina. (B.)

℞. Tinct. Digitalis, ... ʒj–ij.
Tinct. Scillæ, ... ʒij—
Spt. Juniperi Comp., . . . ℥iv–vj.
Potassii Acetatis, ... ʒi—
Vini Albi, ... q. s. *ad* ℥v—
M. Sig.—A tablesp. 3 or 4 times *daily*.

℞. Elaterini, ... gr. j.
Spt. Etheris Nitrosi, ... ℥ ij.
Tinct. Scillæ,
Tinct. Colchici, . . . āā ℥ ss.
Syr. Symplicis, ... ℥ j.
M. Sig.—Teasp. 3 or 4 times daily, in hepatic and cardiac dropsy in sthenic subjects.

℞. Pulv. Digitalis, ... gr. j–jss.
Pulv. Scillæ, ... gr. j.
Hydrarg. c. Creta *vel*
Pil. Hydrargyri, ... gr. j–iij.
Ft. pil. no. j. Sig.—One thrice daily.

℞. Pulv. Scillæ,
Pulv. Digitalis, . . . āā ʒ ss.
Potassii Nitratis, ... ʒ j.
M. Fiat massa, et div. in pil. xxx.
Sig.—One pill thrice daily.

℞. Potassii Acetatis, ... ʒ vss.
Spt. Etheris Nitrosi, ... ℥ ij.
Aquæ, ... q.s. *ad* ℥ viij.
M. Sig.—Tablesp. every 3 or 4 hours.

℞. Potassii Bitartrat., . . . ℥ j.
Ext. Taraxaci, ... ℥ ss.
Decocti Taraxaci, ... ℥ viij.
M. Sig.—½ winegl. twice or thrice daily.

℞. Aceti Scillæ, ... ℥ ss.
Infusi Digitalis, . . . *ad* ℥ iv.
M. Sig.—A tablesp. 2 or 3 times daily.

℞. Liq. Ferri et Ammonii Acetatis (U. S. P.), . . . ℥ vj.
Sig.—Dessertsp. or two three or four times daily. (*Basham's Mixt.*)

Duodenal Catarrh.

Salol, is the most efficient remedy. **Sodium Phosphate,** ʒj four times daily, extremely efficient in catarrhal conditions of the duodenum and bile-ducts, resulting in jaundice, hepatic colic, etc. (B). **Vichy Water,** in similar conditions, probably owes its efficacy to the Sodium Phosphate contained in it (B). **Potassium Bichromate,** in doses of gr. $\frac{1}{10}$–$\frac{1}{5}$, two or three times a day, is an excellent remedy in so-called duodenal dyspepsia, manifested by a bitter taste, coated tongue, pale stools, vomiting of glairy fluid and dull pain in right hypochondrium. **Arsenic,** has been used with success in jaundice from catarrh of bile-ducts after duodenal catarrh (B). **Podophyllum,** in catarrhal and malarial duodenitis. **Nitro-muriatic Acid,** internally in mucous duodenitis; also as bath to right hypochondrium (ʒiij to gall. j), temp. of bath 96° (B). **Aliment.** No starches or fats; milk, eggs, oysters, beef-broth, broiled or raw beefsteak, white-fish (B). Diet should be exclusively animal, in order to let the stomach deal with it. [Compare JAUNDICE, BILIOUSNESS.]

Dysentery.

Mercury, in minute doses for the ileo-colitis of children; gr. $\frac{1}{20}$ to $\frac{1}{12}$ of Calomel or Hydrargyrum cum Creta every half hour (B); gr. $\frac{1}{100}$ of the Bichloride hourly or every 2 hours, in acute or chronic dysentery if stools are slimy or bloody (R). **Ipecacuanha,** is *par excellence* the remedy for acute dysentery of the ordinary type; large doses; gr. xxv–xxx (P); gr. xv in milk (B); valuable in acute or epidemic forms, also in summer dysentery of children, with greenish stools, mucus and blood, gr. ij–v every 2 hours, in milk (B); in dysenteric diarrhœa of children, especially with vomiting, which will often yield to hourly drop doses of Ipecac wine (R). **Hamamelis,** when the discharges contain much blood (R). **Aconite,** when fever and cutting pains (P). **Nux Vomica,** in epidemic dysentery (P); prune-juice stools, much gas, vital depression (B). **Arsenic,** Fowler's solution gtt. ij with gtt. v of Opium often benefits (B). **Quinine,** when periodic (B); in malarial subjects is as successful as Ipecacuanha in dysentery of the ordinary type (P). **Gamboge,** gr. ¼ in 24 hours, exceedingly valuable, especially in young persons (P). **Castor Oil,** as a mild cathartic, is very valuable in appropriate cases (Wa); gtt. v every hour, in water with sugar and gum, is excellent for dysenteric diarrhœa of children (Smith). **Bismuth Subnitrate,** in doses of 15 to 20 grains every hour or so, is highly efficient; may also be used in suspension with Starch or Chalk-mixture, as a rectal injection. **Arnica,** is highly extolled for cases where the vital powers are depressed (Wa). **Salol,** is highly efficient. **Saline Purgatives,** Epsom salts the best treatment for acute dysentery, especially when fever, pain, tenesmus and stools of mucus and blood (B). **Potassium Bitartrate,** in acute dysentery with scorbutic symptoms, as seen in miners, sailors, etc.; a full cathartic dose, ℥ss or more, has acted most beneficially as a preliminary to other treatment, and in many cases has proven to be the only remedy required. **Silver Nitrate,** in pill. gr. ¼–j, with Opium, in acute dysentery after subsidence of acute symptoms; also as enema beyond the sigmoid flexure (gr. x–xx ad Oj aquæ); also as escharotic through speculum to ulcer of rectum (B). **Opium,** as enema, with starch and milk, after canal is emptied by salines; indispensable in chronic dysentery (B); for the purging (R); a remedy of great value, and applicable to every stage and every form of the disease, allaying pain and vascular excitement, moderating peristalsis, promoting the cutaneous secretion: is inferior to Ipecac in acute dysentery, and is most valuable in the chronic form (Wa). **Glycerin,** with infusion of Linseed (1 to 4), to allay tenesmus (B). **Lead Acetate,** as enemata in acute and chronic dysentery, to allay tenesmus (B); with Ipecac and Opium in pill, for acute form. (Da C). **Sulphuric Acid,** with saline purgatives (B). **Copper Sulphate,** useful in acute dysentery; in chronic the most valuable astringent (B); gr. x–xx ad Oj aquæ (R). **Ergot,** in chronic, after acute; and also in the acute form (R). **Grape-cure,** is used successfully in the chronic form (P). **Iron Pernitrate,** sometimes in chronic (army) dysentery (B). **Calumba,** is of great value in chronic, with ulceration of colon (P). **Injections of mucilaginous enemata** (as Linseed) are of great value (R). **Diet** is of prime importance (B). Avoid animal food and stimulants; liquid foods best; all cold (R). [Compare DIARRHŒA, ENTERITIS.]

Prescriptions.

℞. Plumbi Acetat., ... gr. xxiv.
Ipecacuanhæ, ... gr. iij.
Pulv. Opii, ... gr. iij.
Fiant pil. no. xij. Sig.—One every 2 hours until blood ceases, then at longer intervals. (*Da Costa.*)

℞. Plumbi Acetat., ... gr. iv.
Morph. Acetat., ... gr. ss.
Aq. Fervid., ... ℥j.
M. Sig.—Enema to allay tenesmus.

℞. Morphinæ Sulph., ... gr. ij.
Strychninæ Sulph., . . . gr. ¼.
Ac. Sulphurici Dil., . . . ℥ss.
Aquæ Camphoræ, ... ℥iijss.
M. Sig.—Teasp. well diluted, every hour or two. In epidemic dysentery with prune-juice stools and marked depression.

℞. Bismuthi Subnit., ... ʒij.
Spt. Ammon. Aromat., . . ʒj.
Tinct. Opii, ... gtt. xvj.
Syrupi Simplicis, ... ℥ss.
Misturæ Cretæ, ... ℥jss.
M. Sig.—Dessertsp. to child over one year; tablesp. or more to an adult, every 2 or 3 hours, after emptying bowels by a laxative.

℞. Magnesii Sulph., ... ℥viij.
Ac. Sulphurici Dil., . . . ℥ss.
Aquæ, ... ℥viij.
M. Sig.—Tablesp. in a winegl. of water every hour or two until it operates. (B.)

℞. Ergotini, ... gr. xx.
Ext. Nucis Vom., ... gr. v.
Ext. Opii, ... gr. x.
Fiant pil. no. xx. Sig.—One every [illegible] 6 hours. (*Kin*[illegible])

℞. Liq. Ferri Nitratis,
Ac. Nitrici Dil., ... āā ʒss.
Syr. Zingiberis, ... ℥j.
Aquæ, ... q. s. *ad* ℥iij.
M. Sig.—Teasp. thrice daily for a ch[illegible] of 2 years. Tonic to follow palliat[illegible] treatment. (*Star*[illegible])

℞. Ext. Ergotæ Fl., ... ℥iijss[illegible]
Tinct. Opii Deodor., . . . ʒss.
M. Sig.—Teasp. thrice daily.
(*Andre*[illegible])

℞. Ferri Sulphatis, ... gr. xl[illegible].
Pulv. Opii, ... gr. x[illegible].
Fiant pil. no. xx. Sig.—One th[illegible]ice daily, in chronic dysentery.

Dysmenorrhœa.

Pulsatilla, in the functional form; is of much benefit when discharge is scanty or profuse, black and clotted; should be persevered in for 2 months or more (P); gtt. ij every hour is most effective when the affection is not of membranous, obstructive, or neuralgic character (Smith). **Hydrastinine,** has been used with benefit. [See under MENORRHAGIA.] **Chloralamid,** in one dose of gr. xxx, to prevent an impending attack, has been of service. **Belladonna,** in neuralgic or spasmodic forms, dark and fetid discharge, crampy pains, and cold chills; a suppository or mild injection, together with internal administration, will relieve (P); in neuralgic dysmenorrhœa it will permanently relieve (B). **Aconite,** a valuable remedy when commenced early (P); for the congestive form in plethoric subjects (B). **Cimicifuga,** relieves the pain in the congestive variety, and is decidedly useful (P); is said to be very efficient (R); is valuable (Wa). **Opium,** necessary when pain is very severe; one hypodermic of Morphine at each period is often sufficient (Wa). **Codeine,** when Morphine is not well borne, has given very complete satisfaction in several cases; gr. ¼ to ½ morning and evening (Oliver). **Gelsemium,** relieves pain in the neuralgic form, ♏v–x of the fluid extract every 2 hours (B). **Chloroform,** as the liniment on a flannel wrung out of hot water, or by inhalation as anæsthetic when pains very severe; sometimes exerts a permanent influence (Wa). **Ergot,** given when the molimen begins, is useful in the congestive form (B). **Amyl Nitrite,** may be inhaled with benefit in the neuralgic variety, especially in chlorotic girls (Wa). **Sodium Borate,** in the membranous form, has been used with great benefit combined with Ext. Belladonnæ (Wa). **Ammonium Acetate,** has remarkable power over many forms of dysmenorrhœa; the Liq. Ammonii Acetatis, in ℥ss doses, with gr. ⅓ of Ipecac, every 2 or 3 hours, to keep up the action of the skin until the flow is well established (E). **Camphor,** is my favorite remedy, gr. x in mucilage and Cinnamon-water; repeat the dose in an hour or two if necessary (Dewees). **Guaiacum,** is very useful (P); drachm doses of the ammoniated tincture in the neuralgic or rheumatic forms (B). **Caulophyllum,** is by many considered the best curative remedy for spasmodic dysmenorrhœa, if given in the intervals. **Viburnum Opulus,** the fluid extract, in half-drachm doses, has considerable reputation in some sections for uterine pains of various kinds, and is useful in the spasmodic variety of this affection; may be used in combination with Cannabis Indica (Thomas). **Arsenic,** gtt. iij–x of Fowler's sol. with gtt. x of Tinct. Digitalis, ter die between the periods, gives excellent results (Athill); indicated when copious membranous discharge from bowels and uterus (R). **Cannabis Indica,** is very useful as a palliative in painful menstruation (B); gr. ss–j thrice daily to relieve the pain (R). **Nux Vomica,** in neuralgic form. Syrup or Elixir of Iron, Quinine, and Strychnine (B). **Apiol,** neuralgic form (B); as emmenagogue, night and morning, for several days near the period (Wa). **Electricity:** in neuralgic, a galvanic current; in congestive, inverse current (B). **Croton-chloral,** in neuralgic form (R). **Iron,** if depending on anæmia (B). [See AMENORRHŒA for formula.] **Cajuput Oil,** said to relieve the pains (R). **Rue and Sumbul,** are reported useful (P). **Emetic** of Ipecac, with warm covering in bed, feet in hot water, hot ginger tea, Liquor Ammonii Acetatis. If pain very severe, a suppository of Morphine and Belladonna per rectum; best to avoid anodynes (E). **Accessories,** spinal ice-bag, when scanty discharge; when menorrhagic, hot water spinal-bag. Sitz-baths, either hot or cold, or cold alone, during intervals.

Prescriptions.

℞. Ext. Cimicifugæ Fl., ... ʒ iv.
Ext. Pulsatillæ Fl., ... ʒ jss.
Ext. Eriodyctii Fl., ... ʒ j.
Syr. Aurantii, . . . q. s. *ad* ℥ iv.

M. Sig.—One or two teasp. every 2 hours to six doses.

℞. Ext. Belladonnæ, ... gr. iv.
Ext. Stramonii,
Ext. Hyoscyami, ... āā gr. v.
Quininæ Sulphatis, ... gr. xl.

Fiant pil. no. xx. Sig.—One pill thrice daily. Neuralgic dysmenorrhœa.

℞. Ext. Viburni Prunifol. Fl., ℥ ij.
Ext. Senec. Aurei. . . . ℥ ij.
Tinct. Guaiaci Volat.,
(Dewees.) See U. S. Disp.,
p. 1380, ... ℥ xij.
Sig.—A teasp. in new milk, thrice daily, between attacks, ʒ j every hour during attack, and a hot sitz-bath.

℞. Ext. Ergotæ Fluidi, . . . ʒ vij.
Tinct. Gelsemii, ... ʒ j.
Tinct. Aconiti, ... ♏ xvj.
M. Sig.—Teasp. every 2, 3, or 4 hours. In congestive dysmenorrhœa.

℞. Ext. Opii, ... gr. v.
Ext. Cannabis Ind.,
Ext. Hyoscyami, . . . āā gr. x.
Camphoræ, ... gr. xxv.
M. Fiant. pil. no. x. Sig.—One pill 2 or three times daily. (*McLane.*)

℞. Ext. Cannabis Ind. Fl., . . ʒ jss.
Ext. Viburni Op. Fl., . . ʒ vj.
Mucil. Acaciæ, ... ℥ iij.
Aq. Cinnamomi, . . . *ad* ℥ iv.
M. Sig.—Dessertsp. every 4 to 6 hours.

Dyspepsia.

Pepsin, is very beneficial; Scheffer's or Beale's saccharated pepsin with diluted HCl acid (B): is especially adapted to gastric indigestion. **Pancreatin,** for intestinal indigestion. Liquor Pancreaticus to peptonize milk, gruel, soups, etc., before administration, in cases of great digestive debility. **Papain** (Papoid), acts equally well in gastric and intestinal indigestion, and hence is particularly indicated in cases of difficult diagnosis as to the location of the trouble; is used in the various forms of dyspepsia and indigestion with most excellent results. Has marked proteolytic action in acid, alkaline and neutral solutions, and in the presence of many chemicals, antiseptics and therapeutic agents (Chittenden). **Ingluvin,** also promotes digestion (B). **Pineapple Juice** has the power of digesting proteids (Marcano); the fresh juice is a very constant and powerful digestant of albuminous matters, its ferment being decidedly active in the presence of either acids or alkaline carbonates, but most energetic in neutral solution, and between 122° and 140° F. (Chittenden). **Mineral Acids.** Hydrochloric or Lactic with Pepsin after meals in atonic dyspepsia; Hydrochloric after meals for acid pyrosis; Nitro-muriatic for dyspepsia with mental despondency, oxalates in urine, offensive gas, sallow complexion (R); Phosphoric, dilute, very efficient before meals (Da C.). **Sulphurous Acid,** ♏ v–ʒ j, well diluted, for acid pyrosis (B). **Alkaline Mineral Waters,** before meals in atonic dyspepsia, and highly useful in the dyspepsia of obese subjects (B). Alkalies, shortly before a meal increase the gastric juice, and are usually better than acids in atonic dyspepsia; Sodium Bicarbonate is the best (R); a full dose (gr. xl–lx) in dyspeptic attacks, with flatulence, etc., usually affords speedy relief (Wa.)

Nux Vomica, gtt. v–x ter in die before meals as stomachic tonic (B); when flatulence, weight on head, and heartburn (R); often of the highest possible value in simple atonic form, or in the dyspepsia of drunkards (P). **Arsenic,** drop doses of Fowler's solution before meals in irritative dyspepsia (B); also when diarrhœa is excited by food (R). **Bryonia,** in dyspepsia of liver origin, "bilious" headache with vomiting (P). **Charcoal,** when flatulence; Nux Vomica in 5 ♏ doses before meals, better (R). **Mercury,** Gray powder, gr. j, 3 or 4 times a day, when dyspepsia during chronic disease or convalescence. If constipated, Calomel, gr. ss, with extract Hyoscyami, gr. iij, in pill for 3 nights (R). The Yellow Oxide, in doses of gr. $\frac{1}{60}$–$\frac{1}{80}$, for dyspepsia septica and kindred disorders of the alimentary canal; remarkably efficient in Austrian navy (Schaffer). **Ipecacuanha,** ♏ v–x of the wine most valuable in atonic and chronic catarrhal dyspepsia (P); constipation, depression, food "like a heavy weight" (R). **Hydrastis,** gtt. v–xv of the tincture before meals, a good stomachic tonic (B); in chronic dyspepsia, sluggish liver (P). **Pulsatilla,** a good remedy when depression with fear of death, white-coated tongue, little or greasy taste, nausea, flatulency, heartburn; gtt. v in water every 4 hours (P). **Cinchona,** with mineral acids in atonic dyspepsia (P). **Quinine,** especially for

wn-dwellers and elderly people; checks excessive fermentation in aliment-
y canal (R. P). **Chamomile,** ♏ij of oil, very useful in atonic dyspepsia (P).
natia, useful in nervous dyspepsia (P). **Taraxacum,** certainly does good in
nple atonic dyspepsia (P). **Belladonna,** gr. ⅙ to ¼ of the extract, once a
y when there is constipation (R). **Bismuth,** mixed with vegetable Charcoal
flatulent dyspepsia (R); gr. x with same quantity of Calcined Magnesia, in
ronic gastric catarrh, where diet cannot be regulated (Rose). **Manganese,**
. x–xv of the Black Oxide in gastrodynia and pyrosis (B). **Sanguinaria,**
t. ij–v of tincture or gr. $\frac{1}{12}$ of alkaloid, in atonic dyspepsia promotes secretion
d increases the appetite (B). **Silver Oxide,** ½-grain doses with same quan-
y of Ext. Hyoscyami before meals in nervous dyspepsia (B). **Xanthoxylum,**
stomachic tonic, ʒj fl. ext. in atonic dyspepsia (B). **Simple Bitters,** Calumba
st; Quassia or Gentian or infusions of them as vehicles for acids and alkalies
); Calumba easily tolerated when stomach weak (R); Gentian as stomachic
d tonic very useful in atonic dyspepsia, and that of gouty subjects; the
ct. in some aromatic water, or in combination with alkalies and sedatives
Va). **Rhamnus Purshiana,** in all cases of dyspepsia associated with a torpid
er and constipation; small doses at first, gradually increased (Wa) **Salo-
en,** is used with decided benefit in intestinal dyspepsia with flatulence.
rontium Bromide, is excellent in dyspepsia, also in acetic and lactic fermen-
tions. **Glycozone,** is an excellent remedy for atonic and acid dyspepsias, in
hich it gives very gratifying results (Edson). **Chloroform,** gtt. xv–xx in
eetened water, when rapid fermentation of food and evolution of gas soon
ter eating; is promptly efficient in giving relief (Willis). **Aloes,** combined
th other agents, where habitual constipation accompanies dyspepsia (R);
pecially indicated in duodenal dyspepsia, gr. ij–iv with Ipecac gr. j-ij, two
three times a week (Wa). **Water.** A dry diet will entirely relieve the ice-
ater dyspepsia, or that due to excessive beer-drinking (B); half a tumbler of
ld water ½ hour before breakfast acts to some people as a purgative and
moves many dyspeptic symptoms, but flatulent dyspepsia is often traceable
excessive water drinking at meals, especially that of iced beverages (R).
ot Water, ½ a pint to a pint at 110°–150° F. an hour before each meal and ½
hour before going to bed, each draught sipped slowly during 15–30 minutes.
s a cure for dyspepsia this is an old and efficient practice (Wa). **Milk-cure,**
s succeeded admirably (B); fresh Buttermilk a most excellent article for
speptics, as also is Kumyss. **Alcohol,** in any form, especially good wines, is
eful in the atonic dyspepsia of sedentary livers (B); when loss of appetite
d of digestive power from fatigue, a glass of wine or brandy-and-water be-
re eating is very appropriate; useful also in indigestion of town dwellers, or
ring convalescence from acute disease (R). **Diet.** Avoid tea and hot bev-
ages, over-cooked food, over-feeding and iced-water; masticate all food
ell, eat slowly, small quantities and frequently. Active out-of-door habits
ould be cultivated, and all articles of food known to disagree should be
rictly avoided. [Compare ACIDITY, BILIOUSNESS, FLATULENCE, GASTRAL-
A, PYROSIS.]

Prescriptions.

. Acidi Hydrochlor. Diluti, . ʒ jss.
Glycerini, ... ℥ ij.
Syr. Rubi Idæi, ... ℥ jss.
Liq. Pepsini (Fairchild), . . ℥ iij.
Spt. Chloroformi, ... ʒ ss.
Vini Albi *vel* Xerici, q. s. *ad* ℥ xij.
M. Sig.—A tablesp. thrice daily after
eals.

. Pepsini (Jensen), ... ʒ iijss.
Ac. Tartarici, ... gr. v.
Glycerini, ... ℥ jss.
Vini Xerici, ... *ad* ℥ viij.
M. Sig.—Teasp. or two after meals.

℞. Tinct. Nucis Vom., ... ʒ iij.
Ac. Hydrochlorici Dil., . . ʒ v.
Glycerini, ... ℥ ij.
Aquæ Lauro-cerasi, ... ℥ j.
M. Sig.—Dessertsp. before meals, to
improve appetite and digestion.

℞. Bismuthi Subnit., ... ʒ jss.
Pepsini, ... ʒ j.
Strych. Sulph., ... gr. j.
Tinct., Cardam. Co., q. s. *ad* ℥ iv.
M. Sig.—Teasp., thrice daily in water.
For bilious dyspepsia.

℞. Ac. Hydrochlorici Dil., . . ʒj.
Tinct. Capsici, ... ʒss.
Tinct. Calumbæ, ... ℥jss.
Vini Pepsini, . . . q. s. *ad* ℥iv.

M. Sig.—Dessertsp. after meals. In atonic dyspepsia. (*Pancoast.*)

℞. Tinct. Capsici, ... ♏xvj.
Tinct. Nucis Vom., ... ʒij.
Tinct. Gentianæ Co., . . *ad* ℥ij.

M. Sig.—A teasp. in water thrice daily, with gr. ⅓ Aloin at bedtime, avoiding a starchy diet. For aggravated dyspepsia with constipation. (*Da Costa.*)

℞. Sodii Bicarb., ... ʒij.
Spt. Ammon. Aromat., . . ʒij.
Tinct. Zingib., ... ʒj.
Infusi Gentianæ Co.,
(U. S. P. 1870), q. s. *ad* ℥viij.

M. Sig.—Teasp. or two thrice daily. For acid dyspepsia.

℞. Creosoti, ... ♏viij.
Bism. Subcarb., ... ʒij.
Glycerini,
Aq. Menth. Pip., ... āā ℥j.

M. Sig.—To be well shaken. A teasp. every 3, 4 or 6 hours, for pain in stomach and wind. (B.)

℞. Rhei, Gentianæ, et Cardamomi, contus., ... āā ʒij.
Spt. Vini Gallici, ... ℥ij.
Aquæ, ... ℥vj.
Macera per horas 48, cola, et adde—
Tinct. Nucis Vom., ... ʒj.
Potassii Carbonat., ... ʒj.

M. Sig.—Tablesp. in water thrice daily, before meals.

℞. Tinct. Gentianæ Co., . . . ℥ij.
Sig.—Teasp. in water thrice daily.

Dysphagia.

Cocaine, the Hydrochlorate in solution, 20 per cent., as spray or by swab, relieves the dysphagia of phthisical laryngitis (P). **Cajuput Oil,** in nervous dysphagia, used in India with considerable success (P). **Potassium Bromide,** for congenital dysphagia of liquids in children, when no diphtheria or malformation (R); in hysterical dysphagia (Wa); benefits a curious affection sometimes seen in children, who from their birth can swallow solids with ease but choke at liquids (R). **Sprays** of Ammonium Bromide, Chlorine-water, or other sedative agents in warm solution, for the dysphagia depending on specific disease of the larynx (Muirhead). **Galvanism,** in the vicinity of the œsophagus will speedily remove hysterical dysphagia (Muirhead). **Tonics,** as Strychnine, Iron and Quinine, for post-diphtheritic dysphagia. **Iced Fluids,** slowly swallowed, will often remove spasmodic dysphagia (Wa).

Dyspnœa.

Morphine, hypodermically, the most efficient agent in relieving dyspnœa from cardiac disease, or any other form; but if albumen in the urine it must be withheld (Allbutt); controls dyspnœa from any cause, more energetically than any other agent, giving the very power to breathe (Huchard). **Grindelia,** of great service in dyspnœa with cough, occurring in emphysema (W). **Cimicifuga,** has often relieved most distressing cases from cardiac disease (P). **Spigelia Anthelmia,** produces and often relieves it when with palpitations (P). **Valerian** has proved useful when nervous (P). **Prunus Virginiana,** has proved very efficacious in cardiac dyspnœa (P). **Amyl Nitrite,** serviceable in cardiac dyspnœa and other forms (Wa). **Asafœtida,** in combination with other antispasmodics, often very beneficial in dyspnœa of chronic bronchitis (Wa). **Chloroform,** a few whiffs give temporary relief in the cough and dyspnœa of phthisis and bronchitis (Wa). **Ethyl Iodide,** by inhalation, is very serviceable in many forms (Sée). **Terpin Hydrate,** of especial value in asthmatic dyspnœa, gr. ij every ¼ hour until gr. x are taken (Boyland). **Terebene,** for the dyspnœa of chronic emphysema of the lungs; efficient in combating this symptom of various pulmonary affections. **Arsenic,** for the dyspnœa of weak heart. **Dyspnœa** is a symptom, and may be referable to cardiac, pulmonary, pharyngeal, laryngeal or tracheal disease (T). [Compare ASTHMA, BRONCHITIS, CROUP, EMPHYSEMA, PHTHISIS, ETC.]

Prescriptions.

℞. Potassii Iodidi, ... ʒj.
Tinct. Lobeliæ, ... ℥iv.
Syr. Sanguinariæ, ... ℥j.
M. Sig.—Teasp. every hour.

℞. Liq. Morph. (Magendie), . ʒj.
Spt. Etheris Compos., . . ʒij.
Syr. et Aquæ, . . q. s. *ad* ℥ij.
M. Sig.—ʒ ss–j thrice daily.

Dysuria.

Cantharis, gtt. j (sometimes v) of tinct. ter die, for frequent micturition with pain (R); for irritable bladder, vesical tenesmus (B). **Cannabis Indica**, relieves dysuria (R); when bloody urine (P); an excellent anodyne in painful affections of the bladder, having specific action on that organ. **Belladonna and Hyoscyamus** have similar sedative effects in vesical and urethral irritation (P). **Linseed**, as infusion, is often a valuable adjunct (P). **Opium**, in suppository, gr. ij combined with Hyoscyamus, gr. x, an excellent palliative (P); an enema of Laudanum or Morphine hypodermically to relieve the strangury caused by blisters (B). **Camphor**, is said to relieve strangury (R). **Chimaphila**, has undoubted power (P). **Squill**, often produces the best effects, especially a combination of the Acetum with Spt. Ætheris Nitrosi, equal parts, of which ʒss in ℥ij of Anise-water, every hour or oftener (Wa). **Gelsemium**, a useful remedy (B). **Ergot**, in paralytic dysuria, with sensation of bladder being imperfectly emptied (P). **Alkalies**, the Citrates, when dysuria from uric acid crystals in young male children (R). **Nitrous Ether**, Spt. Ætheris Nitrosi, ʒj–jss in any convenient vehicle, a popular and efficacious remedy (Wa). **Diluent Drinks**, freely, especially a decoction of Uva Ursi, or of Cotton-root (P). [Compare VESICAL SEDATIVES, BLADDER IRRITABLE, and CYSTITIS].

Ear Affections.

Iodol, renders good service in eczema of the ear. In moist, confluent eczema of the pinna, extending within the auditory canal, the surfaces should be thoroughly cleansed, and the powder insufflated into the canal. In dry, external eczema it is best applied in the form of a Lanolin ointment. The inflam'n disappears completely under this treatment, in about 2 weeks, but irrigation should be kept up for a short time afterwards to complete the cure (Chatellier). [Compare BOILS, OTALGIA, OTITIS, OTORRHŒA.]

Ecchymosis.

Arnica, rapidly disperses, if administered shortly after injury, ♏v–x in water every two or three hours (P). **Alcohol**, diluted more or less, according to the amount of irritation present, is a good lotion (P). **Hamamelis**, the tincture diluted with 5 to 8 parts of water, as lotion when much discoloration. **Ammonium Chloride**, in solution, as lotion on lint, or wifh bread or Linseed to form a poultice, in ecchymosis of the eyelids (Wa). [Compare BRUISES, PURPURA.]

Ecthyma.

Quinine, cures, though in many subjects will cause it (B); malnutrition (R). **Lead**, the Liquor Plumbi Subacet., ʒj ad Oj aquæ, a soothing application (Wa). **Zinc Oxide**, the Glycerite, with a little Camphor, an excellent application (Wa). **Cod-liver Oil**, internally and locally (B). **Grape-cure**, often happily modifies (P). **Borax**, a solution in Rose or Elder-flower Water (Wa). **Chlorinated Lime**, a solution as a lotion (Wilson). **Chrysarobin**, internally, half-grain doses, in water or pill, given with good results (Stocquart).

Ectropium and Entropium.

Silver Nitrate, freely to the exposed surface, in ectropium of lower lid due to hypertrophy of conjunctiva after inflammation (C). **Collodion**, successfully used in entropium to restore position of the lid by its contraction. Should be concentrated (Wa). **Faradization**, in paralytic ectropium (C). **Operative Measures**, of great variety, are in use, Arlt's being the best for bad cases in the upper lid (Roosa). Epilation of lashes gives temporary relief in entropium.

Eczema.

Aristol, is an excellent application. **Mercury**, as black and yellow wash in early vesicular and pustular conditions. Mercurial ointments are the most efficient of the local applications, especially those of White Precipitate, Nitrate, mild Chloride, and Black Oxide. Ointments of the Biniodide or Bichloride as irritating application in chronic indolent form (Pf). Brown Citrine Ointment nightly in eczema of the margin of the eyelids after detaching scales (B); very useful when eczema on hairy parts of face; often is best mixed with a tar oint. (R). **Arsenic**, ♏v of Fowler's solution thrice daily on a full stomach, gradually diminishing the dose for chronic type (B); especially in eczema of vulva, anus and scrotum (R); small doses for acute, full doses for chronic form; the urine to be closely watched and the drug discontinued on the least sign of renal irritation (Pf). **Sodium Arsenate**, hypodermically into an eczematous patch, to change the indolent form into an active one (Pf). **Rhus Tox.**, externally and internally, when burning and itching, quickly subdues in some cases (P); in chronic form with rheumatism, worse at night-time; also in acute cases if given at the very beginning, ♏$\frac{1}{100}$ of a good tincture enough dose to begin with (Pf). **Phosphorus**, of undoubted service in eczema of long standing, probably acts as a hepatic stimulant, gr. $\frac{1}{100}$ to $\frac{1}{25}$ in oil, or reliable pill (Pf). **Viola Tricolor**, an infusion the best form, with purgative doses of Senna for a few days, then alone, in eczema of the head and face; gives prompt results (good or bad), often aggravating, which, though good in chronic forms, must be avoided in acute types (Pf). **Calcium Sulphide**, gr. $\frac{1}{100}$ to $\frac{1}{25}$ in acute and chronic cases of pustular character, the impetigo of old writers; small doses in acute form, larger ones in chronic cases (Pf). **Sulphur**, internally and Sulphides as baths, but not in the acute stage (R); solution of Potassium Sulphide in water locally (B). **Liquor Potassæ**, or a stronger solution of Potash, to infiltrated patch of chronic eczema, before attempting to heal it (Pf). **Croton Tiglium**, the seeds bruised in alcohol, as liniment (Wa); the Oil as basis of stimulating applications in the chronic form (Pf). **Glycerite of Tannin**, locally (R). **Potassium Iodide**, is often efficient where a syphilitic history or inheritance can be traced. **Salicylic Acid**, locally, in eczema of hands and feet has been very successful (B); in plaster is of very great value, and becoming more recognized every day, especially by Unna, Pick, etc. The best form is a salicylated soap-plaster. [See formula below.] **Salol**, as an antiseptic powder, has done good service. **Belladonna**, gr. ¼ of extract with gr. iij of Quinine Sulphate thrice daily in eczema of the hand, with Bismuth Subcarbonate as a dusting powder (B). **Zinc Salts**, the Oxide and Carbonate as dusting powder, or the Sulphate, etc., in astringent ointments (Bulkley). **Buckwheat Flour**, one of the best dressings; a limb may be enveloped in a bag filled with the flour (Bulkley). **Tar**, internally, the Pix Liquida in doses of gr. ij–v thrice daily, when Arsenic fails to relieve or is contraindicated; locally in third stage when redness, drying and scaling. Oleum Cadini, when genuine, is the best form of tar, mixed with simple ointment (ʒss–j ad ℥). Ol. Rusci or Pix Liquida may be used (Pf). Tar should never be used in the moist stage, but only after the acute inflammatory symptoms have subsided, and then cautiously. A useful combination, and one less likely than tar ointments to cause irritation, is Ol. Cadini, ʒj–iij, Ol. Amygd. Dulc., q. s. ad ℥j, brushed lightly over the diseased surface.

Conium, the tincture may be added to one of the ointments for the pruritus, which is usually very obstinate; so also Stramonium or crude Petroleum (Pf). **Hamamelis,** locally as antipruritic, and in chronic eczema marked by decided venous retardation (Pf). **Benzoin,** to allay itching, the compound tincture painted on the skin (R). **Lead,** soluble salts as lotions when much inflammation and discharge (R); also in early vesicular and pustular conditions. Diachylon ointment comes next in efficiency to mercurial ointments (Pf). **Zinc,** the Oxide and Carbonate as dusting powders (R); the Sulphate with Alum, Glycerin, and Rose-water, an excellent lotion (B); the Oxide is not curative, but as a protective is the best ointment when freshly and well made, for use over a large surface (Pf). **Lime-water,** as sedative application and to check discharge; after inflammation is subdued, Lime-water and Glycerin (R). **Carbolic Acid,** externally and internally in chronic forms (B); is analogous to Tar, and suitable to the same types of the affection as the latter is given for (Pf). **Phytolacca** has cured obstinate cases (B). **Graphite,** in ointment, 1 to 10, or with some inert powder, as Lycopodium or precipitated Calcium Phosphate, in fissured eczema, especially that of the hands and behind ears (Pf). **Bismuth,** the Subnitrate or Subcarbonate locally (R); the Subgallate (Dermatol), has proven very useful in the treatment of moist eczema. **Ichthyol,** a promptly efficient remedy. **Thiol,** may well replace Ichthyol; the dry form as a dusting powder has been used with remarkable benefit. **Anacardium Orientale** (Oil of Cashew), as ointment in patches of indolent chronic eczema (Pf). **Iris Versicolor,** in chronic eczema of gouty patients invaluable as a hepatic stimulant, ♏v–x of tincture from the fresh root twice daily (P). **Glycerin,** locally at night when caustic lotions have been used (R). **Electricity** has cured obstinate cases (B). **Milk-cure,** when acid indigestion present (B). **Water,** locally is injurious, unless its sp. gr. approaches that of the blood serum. Rose-water with a little Glycerin and Sodium Chloride when ablution necessary in second stage, that of exudation and crusting (Pf). **Soaps,** Petroleum, Cade or Carbolic (R); Sapo Viridis, to soften up infiltrated patches of chronic form, instead of the potash solutions mentioned above (Pf). **Diet** should be largely vegetable, especially those which are eaten raw; Cod-liver oil as a supplemental article of diet. **Chaulmoogra Oil,** in old cases is often of great benefit, as an ointment. The Oil 1 part to 2 or more of Vaselin (Wa). **Oil of Cajuput,** put up by mistake of druggist for Oil of Cade, made a remarkable cure in a case which had resisted treatment for some time (Claiborne).

Prescriptions.

℞. Violæ Tricolor, ... ℥j.
Sennæ, ... ʒss.
M. Fiant chartulæ no. iv.
Sig.—Make an infusion with hot water from each paper, and take every night.
(*Piffard.*)

℞. Vini Ferri Amari, ... ℥jss.
Syrupi Tolutani, ... ʒiij.
Liq. Potass. Arsenit., . . . ℥j.
Aquæ Anethi, ... ℥ij.
M. Sig.—Teasp. to dessertsp. thrice daily. (*Wilson.*)

℞. Ferri et Ammon. Citrat., . ʒj.
Potassii Citratis, ... ʒij.
Liq. Potassii Arsenit., . . ʒj–ij.
Tinct. Nucis Vom., . . . ℥ij.
Tinct. Cinchon. Comp., *ad* ℥iv.
M. Sig.—Teasp. in water, after meals, as tonic and alterative. (*Bulkley.*)

℞. Emplas. Diachyli Simplicis,
Emplas. Saponat., . . . āā p. xl.
Petrolati, ... p. xv.
Acidi Salicylici, ... p. v.
Sig.—Emplas. Salicyl. Compos. (*Pick.*)

℞. Picis Liquidæ,
Pulv. Sem. Anisi, . . . āā ʒijss.
Magnesiæ Calcin., ... q. s.
M. Ft. pil. no. c. Sig.—Two to ten pills daily. (*Miguet.*)

℞. Ung. Zinci Oxidi, ... ℥ss.
Ung. Plumbi Subacet., . . ℥ss.
Chloralis, Camphoræ, . āā gr. xv.
M. Sig.—Use as oint. 2 or 3 times daily after bathing with warm water. For local use in general eczema. (*Gross.*)

℞. Hydrarg. Ammoniat., . . . gr. xv.
Glyceriti Amyli, ... ℥j.
M. Ft. unguentum. (*Müller.*)

℞. Olei Cadini,
Zinci Oxidi, ... āā ʒss–j.
Ung. Aquæ Rosæ, ... ℥j.
M. Sig.—Ointment, antipruritic and mildly astringent. (*Bulkley.*)

℞. Aluminis, ... gr. xx.
Zinci Sulphat., ... gr. x.
Glycerini, ... ʒj.
Aquæ Rosæ, ... ℥iv.
M. Sig.—Lotion. (B.)

℞. Liq. Plumbi Subacet., . . ʒj.
Glycerini, ... ℥ss.
Aq. Laurocerasi, ... ℥ijss.
M. Sig.—Lotion, when there is much weeping. (B.)

℞. Ol. Cadini, ... ℥ss.
Glycerini, ... ʒj.
Ung. Diachyli, ... ℥ijss.
M. Ft. unguentum. In squamous eczema with thickened skin. (*Fox.*)

Emaciation.

Calcium Phosphate, is especially useful in chronic wasting disease (R). **Arsenic,** is used by cattle-breeders to fatten oxen, etc., quickly (Tr). **Iodine,** improves the appetite and digestion, and gives strength and plumpness to the body (Wa). **Cinchona,** in small doses improves the appetite, and the general tone (Wa). **Iron Salts,** cause marked gain in flesh and color (Wa); remarkably promote the appetite and digestion (B). **Cod-liver Oil,** internally and externally with friction, often very effective in the mal-nutrition and marasmus of children (P). **Olive Oil,** by friction daily; inunctions are of value in many wasting diseases (P). **Pepsin,** to promote digestion of food (P). [Compare TABES MESENTERICA.]

Emissions and Erections.

Belladonna, when emissions, genitalia relaxed, atonic state (B); in gradually increasing doses produces good results, even in extreme cases of emissions (Wa). **Camphor,** fails as often as it succeeds (P). **Potassium Bromide,** exercises special influence as a sedative in irritable states of the genito-urinary organs (Wa). **Cimicifuga,** as tonic to the nervous system removes irritation and melancholy, procures sound and refreshing sleep (Wa, P). **Lupulin,** useful to check emissions (P); gr. v–x, or xv, to keep penis at rest (Wa). **Ruta,** in small doses to limit discharge (P). **Chloral,** at bed-time, repeated every night until the habit is broken off (Wa). **Iron,** the tincture of the Chloride in ʒ doses at bed-time, sometimes conquers nocturnal emissions (Wa). **Cocaine,** a few drops of a 4 per cent. solution upon the glans penis, promptly controls an erection. [Compare ANAPHRODISIACS, page 48, also CHORDEE, SPERMATORRHŒA.]

Emphysema of the Lungs.

Morphine, gr. $\frac{1}{6}$, and **Atropine,** gr. $\frac{1}{120}$, hypodermically for the asthmatic attacks: no remedy so efficient; the disease being incurable, treatment must be chiefly palliative (B). **Potassium Iodide,** in full doses alone, or combined with the Bromide, affords most relief next to Morphine (B). **Strychnine,** is a valuable respiratory stimulant; useful where there is constant dyspnœa with prolonged expiration (Wa). **Stramonium,** the leaves smoked for the asthma and dyspnœa before retiring, will often give a good night's rest (Wa). **Ammonium Iodide,** with Arsenic, for the bronchitis, with Copaiba, Turpentine or Eucalyptol, continued for some time (B). **Digitalis,** or hydragogue cathartics as Pulvis Jalapæ Comp. for the dropsy (Da C). **Arsenic,** when connected with recession of a rash is esp. useful (R); long-continued it ameliorates (B). **Terebene,** gives good results upon the dyspnœa. **Lobelia,** allays the dyspnœa which accompanies capillary bronchitis in emphysema (R). **Senega,** often acts beneficially (P). **Cod-liver Oil,** continued for a long time (R). **Hypophosphites,** are useful (B). **Chalybeates,** the Phosphate of Iron, Quinine and

Strychnine (B). **Grindelia**, for asthmatic breathing and bronchitis (B); of great service (Wa). **Chloral**, for the short breath of such patients brought on by catching cold; if obstructed circulation, caution required (R). **Bleeding and Purging**, have been used with great success in many emphysematous conditions (R). **Compressed Air**, the only scientific remedy yet brought forward for this disease; affords much relief which is sometimes permanent (B); the apparatus of Waldenberg is the best for this purpose. [Compare ASTHMA, BRONCHITIS, DYSPNŒA.]

Prescriptions.

℞. Potassii Iodidi, ... ʒ iij.
Strychninæ Sulph., . . . gr. j.
Liq. Potassii Arsenit., . . ʒ ijss.
Aquæ Laurocerasi, . *ad* ℥ iv.

M. Sig.—Teasp. 4 times daily. For relief of dyspnœa, toning the cardiac action, removing the bronchial catarrh, and preventing the progress of the affection.
(*Hughes.*)

℞. Potassii Chlorat., ... ʒ jss.
Tinct. Belladon., ... ʒ jss.
Ext. Pruni Virgin. Fluidi,
Tinct. Cinchonæ Comp., āā ℥ ij.

M. Sig.—A dessertsp. 4 times a day. Where chronic bronchitis and anorexia. Dry cups also to chest night and morning.
(*Da Costa.*)

Empyema.

Carbolic Acid, a weak solution to be injected after evacuating the pus (R). **Carbolate of Iodine**, has been injected with benefit (B). **Iodine**, in solution to be injected after tapping (R); the undiluted tincture may be thrown in without risk and with great benefit; or the compound solution ℥j to ℥xv aquæ, as wash for the cavity to prevent re-formation of pus (B). **Chlorine-Water**, or solution of **Quinine**, to wash out the cavity (R). **Salicylic Acid**, in solution, answers well for the same purpose (P). **Ammonium Acetate**. The official Liquor Ferii et Ammonii Acetatis, with Quinine and stimulants, if the affection shows a tendency to linger (Da C).

Endocarditis.

Aconite, should be given early in all inflammations of serous membranes (Wa); gtt. ½ or less, frequently (R); it is rare to meet with permanent organic heart disease as a result of rheumatic fever when the disorder is treated with Aconite from its commencement (P). **Spigelia Anthelmia**, is very useful in rheumatic endocarditis (P). **Opium**, in inflammation of serous membranes (B). **Digitalis**, to control the circulation, especially where irregular heart action (Da C). **Veratrum Viride**, has been used with remarkable effect on the pulse (Wa). **Alkalies**, as Potassium or Ammonium Carbonate, freely until urine is alkaline, to prevent permanent changes about the valves or orifices (Da C). **Potassium Iodide**, to promote absorption of the exuded lymph. **Quinine**, at the onset, may check the inflammation (B). **Salicylic Acid**, is useful in the rheumatic form (P). **Rest** for some days after active signs have abated, with agents to lower the blood-pressure within the heart and vessels (Fothergill). **Leeching**, in the acute inflammation is to be recommended if done early, later is useless; use cups if no leeches are at hand (Da C). **Poultices**, give great relief and are of decided benefit (Da C). **Stimulants**, as Ammonium Carbonate, etc., freely, if signs of oppressed circulation appear (Da C). **Iron**, the tincture of the Chloride with alkalies, if pyæmic symptoms are manifested (Da C). [Compare PERICARDITIS.]

Endometritis.

Carbolic Acid, undiluted, on cotton-wrapped probe; no better method of treating uterine catarrh (B). **Iodine**, the most valuable of all local remedies (E); Churchill's tincture (Iod. gr. 75, Pot. Iod. gr. 90, Alcohol ℥j), one of the most useful applications to the endometrium (Mundé). **Iodine Phenol** (Iod. j Ac. Carbol. iv), on cotton-wound probes, applied to the uterine cavity, has given the best results of any agent used for 8 years past (Battey). **Chromic Acid**, as caustic, when slough is required; should only be used after dilatation of cervical canal, and at the patient's house (Mundé); a solution of gr. xv to ʒj of hot water applied with success to the uterine cavity for catarrh (Wooster). **Nitric Acid**, fuming, to uterine cavity through intra-uterine speculum (Atthill); is considered by many the one agent for all forms of intra-uterine medication. Is efficient and comparatively safe, but produces too much cicatricial tissue (Mundé). **Iodoform**, as suppository in rectum (B); in pencils to uterine canal. **Iodo-tannin**, locally in chronic cases (B). **Ergot**, or better **Ergotin**, gr. j, subcutaneously, for the train of uterine disorders depending on passive congestion of the organ (P). [See HYSTERIA for formula.] **Glycerin**, as a local application introduced by Sims, is of great value; esp. as vehicle for impure Carbolic Acid or Iodine, on cotton, or oakum (E). **Hot Water** injections in large quantity about the os uteri, are of great value (E); as usually made are of no value; must be applied by special syringe, in the dorsal recumbent posture with elevated hips, at a temperature of 100° to 120° F. twice daily for at least 20 minutes each time, and persevered in for months and years (Mundé). [Compare UTERINE CONGESTION and HYPERTROPHY.]

Prescriptions.

℞. Potassii Iodidi,
Potassii Bromidi, . . . āā gr. xx.
Tinct. Iodi, ... ʒss.
Aquæ, ... ʒij.
M. For hypodermic injection into cervix, in chronic cervical metritis.
(*Bennett.*)

℞. Ergotini, ... gr. xx.
Tinct. Iodi, ... ℥j.
Glycerini, . . . q. s. *ad* ℥j.
M. Sig.—Apply twice daily with camel's-hair brush, in cervical metritis.
(*Dabney.*)

Enemata.

Enemata, for an infant, ℥ss–j; child 2 to 5 years, ℥ij–vj; 5 to 15 years, ℥vj–Oj; adult, Oj–quart j. A simple domestic enema consists of soapsuds with a little common salt, or a pint of cold water (B). Simple warm water or gruel sometimes; or, to one or the other of these add Soap, Turpentine or Castor Oil, with soap or gruel, to suspend the two latter. Very cold water may be used without inconvenience. Starch, boiled or raw, of cream consistence, temperature 100°, with a few drops of Tinct. Opii, in extreme cases of choleraic diarrhœa, or that of phthisis, or typhoid fever (R). **Nutrient Enemata**, should contain materials for artificial digestion, as the rectum is not an organ of digestion, and to secure rapid osmosis should have an acid reaction. A suitable formula is appended below. Inject slowly and not frequently; five times in twenty-four hours should be the maximum. Defibrinated blood has also been used as a rectal injection with good results, being completely absorbed (B). Should not exceed three or four ounces of bland material, injected slowly, after ascertaining that the rectum is not filled with fæces (R). [Compare INJECTIONES, *ante*, page 476.]

Prescriptions.

Nutrient Enema.

℞. Infusi Carnis (Beef-tea), . ℥iv.
Acidi Hydrochlorici, ... ♏x.
Glyceriti Pepsini (Scheffer), ʒij.
If rectum irritable add 10 to 20 drops of Laudanum.

Enema Ricini et Terebinth.

℞. Ol. Ricini, ... ℥jss.
Ol. Terebinth, ... ℥ss.
Ovum, ... no. j.
Decocti Hordei, *vel*
Aq. Fervid., ... ℥xiv.

Enteritis.

Opium, to the point of tolerance, is *the* remedy, the deodorized tincture in 10-drop doses every second or third hour, according to age (Da C); of great value to control inflammation and quiet the intestines (B); proves of signal use (Wa). **Aconite**, of great utility in acute inflammation with high temperature, sthenic condition, resisting pulse (R, P). **Arsenic**, surprisingly curative; small doses with Opium (B). **Podophyllum**, with occasional doses of Aconite, will often allay the vomiting and diarrhœa (P). **Ricinus Communis**, is employed with great advantage (P). **Turpentine**, stupes, hot, over seat of disease, are of manifest advantage (Wa). **Skim-milk**, is of the highest value as sole diet in acute inflammation of digestive organs (B). **Water**, cold and hot, principally cold, or ice, of unquestionable advantage (B). **Poultices**, Linseed, large and hot (Wa); may be used or not, as the patient feels benefit from them or otherwise (Da C). **Water**, hot fomentations constantly, followed by a wet compress. Perfect quiet in bed. Ice or cold water freely swallowed. No food until inflammation subsides, then beef-tea, milk, gum-water, etc., the very mildest and most bland diet for four or five days (Da C). [Compare DIARRHŒA, DYSENTERY, CHOLERA, PERITONITIS, TYPHLITIS.]

Enuresis.

Belladonna, no single remedy so uniformly successful; children require large doses; a solution of Atropine, best, gr. $\frac{1}{120}$ to $\frac{1}{60}$ (B); the best remedy for children, gtt. x–xx of the tinct. three times a day; if unsuccessful, and no worms or other irritation exist, try Strychnine, Cantharides, Turpentine, Santonin or Galvanism (R); small doses are useless (P). **Santonin**, in over-doses produces incontinence of urine in children, but curiously will sometimes stay the habit, even when not dependent on worms, and in cases where Belladonna fails (R); in the enuresis from worms (P). **Cantharides**, one or two drops of the tinct. three or four times a day in middle-aged women or the aged, even when due to paralysis; sometimes also in children, but for them Belladonna is generally better (R). **Chloral Hydrate**, enuresis in children (R); three-grain doses thrice daily for infantile incontinence (Da C). **Strychnine**, may succeed when above remedies fail (B); sometimes useful for old people with paralysis of bladder, also for children (R, P). **Buchu**, often successful in chronic enuresis (P). **Turpentine**, small doses sometimes remove the trouble (B). **Lupulin**, said to be useful; Herzfelder used it with advantage. **Rhus Aromatica**, has proven curative in 75 per cent. of cases treated with it, and of great benefit in the other 25 per cent.; the fluid extract, ♏x–xv four times daily in Glycerin and water (Stein). **Scutellaria**, remarkably efficient in many instances, ʒ doses of the fluid extract thrice daily for a child of 12 years old. **Potassium Nitrate**, has been recommended for children (R). **Potassium Bromide**, succeeds in some cases (Wa). **Collodion**, painted to form a cap over end of prepuce (R). **Ergot**, when from paralytic state of sphincter (B); said to be useful (R). **Iron Iodide**, the syrup ♏xv–xx, well diluted with water, ter die, in pale, delicate, strumous children (B); sometimes useful even when no worms (R). **Habits**, Children to be taught to retain water as long as possible during the day; little salt to be eaten; abstinence from fluids not necessary; bland fluids diminish acridity of the urine. Stopping meat from the diet has cured several cases permanently, after all remedies had been tried without success.

Prescriptions.

℞. Strychninæ Sulph., . . . gr. j.
Pulv. Cantharidis, ... gr. ij.
Morphinæ Sulph., . . . gr. jss.
Ferri Reducti, ... gr. xx.
Ft. pil. no. xl. Sig.—One thrice daily to a child of 10 years. (*Gross.*)

℞. Tinct. Ferri Chloridi, . . . ʒ ij.
Ext. Ergotæ Fluidi, ... ʒ v.
Spt. Chloroformi, ... ʒ ij.
Tinct. Quassiæ, . . q.s. *ad* ℥ iv.
M. Sig.—A teasp. in a winegl. of water thrice daily for children.

Epididymitis.

Aconite, alternately with **Pulsatilla**, the latter in very small doses, a few drops of tinct. in a glass of water, a teasp. every 2 or 3 hours produces the happiest effects (Pf, St). **Belladonna**, the extract, ʒj–ij ad ℥j of Glycerin and water, on lint, applied to the inflamed testicle (Bumstead). **Tobacco**, with Linseed meal, as poultice, cautiously (P). **Mercury** and **Morphine**, locally, a 20 per cent. oleate by inunction, in cases of syphilitic origin (R). **Silver Nitrate**, gr. lxxx ad ℥iv aq. destil. freely applied to the scrotum will sometimes abort an epididymitis (Wa). **Strapping** and suspensory bandage to support the testicle, and rest it in the recumbent posture from the beginning, with a saline cathartic to clear the bowels, are all measures of great importance (Bumstead). [Compare ORCHITIS.]

Epilepsy.

Bromides, should be first employed in all cases, there being no remedy equal to large doses of Bromine salts, which should be persistently continued for many months, and with short periods of rest may be kept up for years. The combination mixture of Bromides has been taken by patients for 8 to 10 years without harm (Brown-Séquard); taken for long periods without a physician's supervision, has caused profound muscular depression, mental alienation and death (Hammond). **Potassium Bromide**, gr. xl ter die before meals, double at bedtime, for two or more years after all epileptic indications have ceased; is generally useful, especially in daytime seizures and grand mal of sexual origin; also for infantile convulsions (B); especially in convulsive form, but often powerless (R). **Sodium Bromide**, gr. xx ter die, will arrest epilepsy without producing the cerebral symptoms of bromism (Clymer). **Lithium Bromide**, ʒss daily, acts in some cases after Pot. Brom. has failed, and is generally efficient in about one-half the dose of the latter salt (Weir Mitchell). **Nickel Bromide**, gr. v thrice daily, is remarkably efficient in the epilepsy occurring at the menstrual epoch, and those which have withstood the action of the other bromides (Da C). **Ferrum Bromide**, will often cure cases in weak and anæmic subjects; also with Potassium Bromide to combat the anæmia and depression produced by the latter (B). **Ammonium Bromide**, preferred in petit mal by many authorities. Combined with other bromides, as in Brown-Séquard's mixture (see formula below), before meals, with a tonic of Strychnine or Arsenic and a vegetable bitter, after meals. **Zinc Bromide**, gr. v in water and glycerin four times daily; may be combined with the other bromides. **Strontium Bromide**, in doses of gr. xx thrice daily, gradually increased; has been beneficially used as an alternate, being much less liable to produce bromism (Sée). Both Strontium and Calcium Bromides may be used with benefit (Féré). **Aurum and Arsenic Bromide**, the solution (Barclay's), ♏v thrice daily after meals, increased to ♏x, gave very satisfactory results in a severe case in a boy aged 7½ years (W. F. Barclay). **Digitalis**, Belladonna or Physostigma, combined with Bromides give better results than bromides alone; treatment must be continued for several months to a year (Poulet).

Belladonna, in petit mal and nocturnal epilepsy, in pale and anæmic subjects, should be given for a year or more; extract and leaves gr. ⅛ of each in pill, every day at same hour, one additional pill every month (Tr); useful, especially when from fright (P). **Atropine** better, drop-doses of a 1 per cent. solution of the neutral sulphate in white brandy (Tr). **Arsenic**, in epileptiform vertigo from stomach disorder (B); sometimes useful (R). **Aurum**. The Bromide of Gold and Arsenic (see above). **Sodium Borate**, in doses of gr. xx 3 or 4 times a day, has produced very good results in nocturnal epilepsy: is of real value and better than Bromides in symptomatic epilepsy, also may be found useful in nervous forms after the bromides have failed (Mairet); if beginning with small doses may be gradually increased to 90 grains a day; when dose exceeds 60 grains daily it is advisable to add Glycerin to the water and syrup used as excipients (Dijoud). **Amylene Hydrate**, in 10 per cent.

solution, of which a tablesp. or two (gr. 30 to 90) a day, of value in petit mal and nocturnal epilepsy, also when bromides have failed, and where the attacks are not only very frequent but severe (Nache). **Acetanilid**, is being tried with a view to moderating reflex excitability. **Hydrastinine**, has been used with benefit, in doses of gr. ¼ to ½ of the Hydrochlorate, up to gr. ij daily, internally. **Picrotoxin**, anæmic subjects, attacks occurring at night, $\frac{1}{60}$ to $\frac{1}{20}$ of a grain hypoderm., or $\frac{1}{30}$ to $\frac{1}{15}$ by stomach (B); benefits cases resulting from onanism (P). **Cannabis Indica**, has given good results; is suitable for petit mal, the nocturnal variety, and with Strychnine, Belladonna, or Picrotoxin, for cases characterized by anæmia and depression (B). **Quinine**, when of malarial origin (P); often useful in intermittent epilepsy (Ros). **Solanum Carolinense**, (the Horse-nettle), in tincture of the berries, made by bruising them and steeping in whiskey, has quite a reputation among the negroes for epilepsy and other convulsive affections, and has rendered good service in my hands (Napier).

Amyl Nitrite, inhaled at the beginning of the aura will prevent an attack (B); or ♏ij–v in mucilage, when fits are very frequent (R). **Nitro-glycerin**, ♏$\frac{1}{100}$, slower in action than Amyl Nitrite, but more enduring (Pf). **Ignatia**, convulsions unattended with cerebral congestion (P); is *par excellence* the controller of functional phenomena of the cerebro-spinal axis (Pf). **Strychnine**, is useful in idiopathic epilepsy, but injurious in symptomatic form; benefits when Potas. Bromide fails; when cerebral anæmia, nocturnal attacks (S, Pf); if Bromides fail and case is anæmic, give Strychnine, gr. $\frac{1}{30}$ ter die, and push it (B). **Silver Nitrate**, is not without efficacy, and was formerly much used, but the danger of staining the skin has caused its disuse, especially as better agents have been found (Wa). **Copper Salts**, may be useful in cases originating from stomach; were formerly much used (B); the Nitrate or Oxide often given with benefit (R); the Ammonio-sulphate, gr. ¼ in pill, thrice daily to begin with; should not be continued beyond 3 or 4 months at a time (Brown-Séquard). **Zinc Salts**, have been much used in place of silver and copper salts, not having the serious drawbacks attending the latter agents. **Zinc Oxide**, probably useful only in cases originating from the stomach; much said for and against it (R). **Chloroform**, by inhalation during paroxysm and also in interval (Wa); is of high value especially in cases of an hysterical character (Brown-Séquard). **Chloral**, the most suitable remedy for the nocturnal variety, in full doses at bedtime (B). **Digitalis**, ♏x of the tincture, with gr. xx of Potas. Brom. thrice daily, in cases complicated with cardiac dilatation (Gowers). **Turpentine**, has long been used, when due to reflex impression of intestinal parasites (B). **Conium**, not equal to the Bromides (B); not of much value (P). **Valerian**, has been used with some advantage (R). **Bryonia**, has an ancient reputation (P). **Rue**, may benefit when seminal emissions (P). **Anæsthetics**, are rarely called for (W). **Fats and Oils**, especially cod-liver oil when faulty assimilation exists (B). **Galvanism**, only in idiopathic epilepsy (B). **Meat Diet**, in many cases must be prohibited entirely. **Trephining** the skull, has given good results in several cases where a distinct depression from injury existed; and in others where apparently indicated has been of no service. [Compare CONVULSIONS.]

Prescriptions.

℞. Potassii Bromidi, ... ℥j.
Ferri Bromidi, ... gr. iv.
Aquæ, ... ℥ij.
Syrupi Simplicis, ... ʒvj.
M. Sig.—Tablesp. twice daily.

℞. Strychninæ Sulphatis, . . . gr. j.
Acidi Sulphurici Dil., . . ♏x.
Aquæ Destil., ... ℥iv.
M. Sig.—Teasp. after each meal, gradually increased to a dessertsp.

℞. Potassii Bromidi,
Sodii Bromidi,
Ammonii Bromidi, . . . āā ʒiij.
Potassii Iodidi,
Ammonii Iodidi, ... āā ʒjss.
Ammonii Carbonat., ... ℥j.
Tinct. Calumbæ, ... ℥jss.
Aquæ, ... q.s. *ad* ℥viij.
M. Sig.—A teasp. and a half before each meal, and three teasp. at bed-time.
(*Brown-Séquard.*)

℞. Potassii Bromidi, ... ℥ss.
Sodii Bromidi, ... ℥ss.
Liq. Potas. Arsenitis, . . ʒss.
Ext. Conii Fl., ... ♏l.
Aquæ Cinnamomi, . . . ℥ij.
Infus Gentian. Co., q. s. *ad* ℥viij.
M. Sig.—Tablesp. two hours after each meal.

℞. Potassii Bromidi,
Ammonii Brom., . . . āā ℥ij.
Ext. Ergotæ Fl., ... ℥j.
Aq. Cinnamomi, . q. s. *ad* ʒviij.
M. Sig.—Dessertsp. in water thrice daily. When maniacal excitement and danger of cerebral hemorrhage. (*Smith.*)

Epistaxis.

Aconite, has been used with the best results (P); small frequent doses quickly check epistaxis in children and plethoric people (R). **Arnica**, is of great service when from mechanical violence (P). **Belladonna**, when of congestive origin (P). **Ipecacuanha**, has been highly praised (R); acts upon the vessels (B); gr. j–ij every quarter hour until nausea is felt, but vomiting need not be excited (Wa). **Hamamelis**, venous hemorrhage (Pf, R). **Ergot**, ʒss–ʒj of fresh powdered Ergot, or ʒj–ʒij of flu. ext. every half hour or hour, necessary in urgent cases (B). **Alum**, injected or snuffed up in powder (R). **Iron Spray**, in obstinate cases Liq. Ferri Subsulph., ʒj to ℥viij aquæ by spray or injection; the Tinct. of the Chloride also useful (B); diluted ʒij in ℥vj injected into the nostrils is often effectual (Wa). **Tannin**, finely powdered, blown into the nostrils through a quill (Wa); a strong solution, ʒij ad ℥iv, by nasal syringe (B). **Turpentine**, may be given internally with advantage (Wa); especially in debilitated conditions (B). **Lead Acetate**, gr. ij–iv with Opium gr. ss–j, proves signally useful (Wa). **Vinegar**, on lint introduced into the nostrils, sometimes highly efficient (Wa). **Digitalis**, is of undoubted benefit (B); the infusion best (R). **Transfusion**, when death from exhaustion is apparently imminent (B). **Facial Artery**, compression of (R). **Sundry.** Keep head elevated and cool; warm the feet and hands by plunging into hot water; apply ice over the nose; resort at once to the tampon, if bleeding becomes alarming. [Compare HEMORRHAGE, for formulæ.]

Eruptions.

The following-named Drugs produce the eruptions indicated respectively after each, viz. **Aconite**—vesicular exanthemata. **Arsenic**—erythema and papules, vesicles and pustules. **Belladonna**—as Quinine. **Borax**—papular, scarlatiniform. **Potassium Bromide**—papules, pustules, deep tubercles with ecchymoses, ulcers, pemphigus. **Castor Oil**—urticaria. **Cinchona**—as Quinine. **Carbolic Acid**—erythema. **Chloral**—erythema on face and neck, itching, desquamation, eczema, purpura and petechiæ. **Copaiba and Cubeb**—pemphigus erythema, eczema; the Copaiba rash has a preference for the ankles and wrist. **Cod-liver Oil**—acne. **Digitalis**—erythema after long usage. **Potassium Iodide**—papules, vesicles, pustules, eczema, ecthyma, ecchymoses and purpura; the Iodide rash prefers the face and back of neck and shoulders. **Mercury**—erythema, eczema. **Opium and Morphine**—erythema, papular eruption with marked desquamation and itching. **Phosphorus**—purpura. **Quinine**—erythema, scarlatina, papular erythema, hemorrhagic purpura, pemphigus and prurigo. The prevailing type of the Quinine eruption is erythema, or exceptionally eczema or purpura, and is essentially ephemeral; it is of a bright vivid hue, disappearing on pressure, and resembles scarlatinal rash, first appearing on face and neck, and thence spreads over the body. In some instances it comes in distinct spots and resembles measles; in others it is an urticaria, with some œdema, and distressing burning, tingling, and itching. Five cases of purpura are authentically reported. **Rhus Toxicodendron** (and other varieties of Sumac)—vesicles, perhaps pustules, with redness, swelling and intolerable itching. **Salicylic Acid**—purpura, pemphigus, vesicular angina. **Santonin**—pemphigus, vesicles. **Stramonium**—as Quinine. **Strychnine**—as Quinine. **Turpentine**—as Copaiba.

Articles of Food producing eruptions are: **Acid Fruits**—may cause acute eczema. **Strawberries**—urticaria. **Apples**—acneform efflorescence about the mouth. **Walnuts**—inflammation of buccal mucous membrane. **Shell-fish**—urticaria. **Roast Turkey**—in one case caused great urticaria. **Lager Beer**—acne in some. **Alcohol**—aggravates cutaneous inflammations. **Butter, Oatmeal, Buckwheat, Fish**—are popularly credited with causing eruptions, but there is no evidence therefor.

Erysipelas.

Pilocarpine, to abort the disease, very efficient if used early, gr. ⅙ hypodermically, or fluid extract of Jaborandi internally; when free diaphoresis occurs, the temperature and pulse fall to normal, and the disease is checked; not suitable to debilitated cases, or those with a weak heart (Da C). **Aconite**, a favorite remedy with Liston, if used at beginning, when fever high (Wa); no more useful agent in idiopathic erysipelas, especially facial, and cases of sthenic type (B); at onset, often cuts the attack short; is very useful in the erysipelas following vaccination (R); very valuable in sthenic cases (P); especially so in traumatic erysipelas (Tr). **Belladonna**, ♏v of tincture in water every hour for five or six doses, also locally; has astonishing power in superficial and non-vesicular forms, also when erysipelas attacks the brain, and in the phlegmonous type (P); for similar indications as noted under Aconite, also when adynamia; if much fever, combine it with Digitalis or Aconite; when much depression, give it with Quinine; gr. ¼ of the extract with gr. ij of Quininæ Sulph. every 3 or 4 hours (B); the extract with Glycerin, equal parts, spread thickly over the surface (Quain); should be used both internally and externally, and may be combined with Aconite (R). **Iron, Tincture of the Chloride**, the nearest to a specific yet discovered; the remedy of most service, any man being decidedly to blame who neglects its use; requires decided doses, gtt. xl every 4 hours (Da C); treatment by it very general, but questionable (B); should be given with shorter intervals than 4 hours (R); is very successful in this disease (P); ten-drop doses every hour, or ♏xl every 4 hours (Quain); is also used locally with much success, being painted over the surface in full strength. **Quinine**, may be given with the Iron; also alone if thoracic complications, wherein Iron might be contra-indicated (Da C); if pulse soft and tremulous, or very rapid, low muttering delirium (D); a combination of Quinine and Tincture of the Chloride of Iron offers special advantages (Wa); in the more severe cases to sustain the vital powers, and prevent cerebral embolism; but large doses, gr. xv–xx every 4 hours, are alone of any use (B). **Ammonium Carbonate**, when feeble circulation, cyanosis and delirium; also when any signs of embolism appear (B); highly useful in debilitated subjects (Wa); after free purgation the continued use of this salt is all that is needed in most cases (Watson). **Potassium Iodide**, with agents to secure free action of the bowels, skin and kidneys, the most efficient treatment in erysipelas ambulans, in which Iron and Quinine are useless (Da C). **Antipyrin**, is particularly efficient when hyperpyrexia (Ernst). **Rhus Tox**, a very useful remedy in the vesicular form (P). **Tartar Emetic**, in doses of gr. $\frac{1}{16}$ frequently repeated, renders incontestable service (B). **Calomel and Jalap**, as purgative at onset, followed in 4 or 5 hours by Magnesium Sulphate, ℥ss (Da C). **Chloral**, is an admirable adjunct to give sleep at night (Da C). **Turpentine**, as a stimulant in traumatic erysipelas, more generally serviceable than Alcohol (B).

Local Applications. **Silver Nitrate**, by Higginbotham's method in traumatic form; gr. lxxx of the brittle stick dissolved in ʒiv of water and painted 2 or 3 times over inflamed surface and beyond, after careful washing and drying (R); no agent more useful in subduing external inflammation. **Iodine**, painted over affected and neighboring surface, to prevent spreading (R). **Ichthyol**, is very efficient as a 10 to 25 per cent. collodion: Ichthyol and Ether, of each 5, Collodion 10 parts, with or without the addition of Castor Oil; has almost specific properties in this disease (Radcliffe). **Thiol**, dry, as a dusting powder, has given excellent results. **Iodized Collodion**, is very successful as a local application. [See formula below.] **Collodion**, a thick coating relieves (B). **Digitalis**, an infusion is of much service, applied as a lotion (R). **Sulphurous Acid**, and Glycerin, equal parts, or a solution of Sodium Bisulphite (Dewar). **Zinc, Benzoated**, as ointment, or the Unguentum Zinci Oxidi, anything to exclude the air, and whichever one is most agreeable to the patient (Da C). **Bismuth**, the Ointment of the Oleate, a very certain application to allay itching and burning, lessen pain, etc. (Shoemaker). **Oil**, by inunction, is very grateful in simple erysipelas (B). **Oil of Turpentine**, painted over surface is said to be remarkably efficient. **Vaselin**, Lard or Mercurial Ointment, diluted, ʒj to ℥j of Vaselin; the simplest applications are the best (B). **Carbolic Acid**, one part, with 8 to 14 parts of Oleic Acid, locally by inunction for 3 or 4 minutes every ¼ hour, all around the edge of the diseased part until it ceases to spread (Jacobi). **Cotton Wool**, sprinkled with flour or a mixture of Starch and Zinc Oxide, is a good application (B). **Earth**, clean yellow clay, free from grit or sand, and powdered, applied directly to the skin in the form of a smooth paste, made by mixing it with water, the best of all applications, having properties of antiseptic, antiphlogistic, antipyretic, and antimorbific nature (Hewson).

Tracheotomy, promptly if œdema of glottis occurs, the operation giving time for inflammation to subside (Da C). **Incisions**, may be necessary in traumatic erysipelas when limb is greatly swollen and inflamed; also in the phlegmonous variety (Da C). **Diet**, a milk-diet is generally suitable; should be light but nutritious (R); feed the patient well (Da C). [Compare PHLEGMON.]

Prescriptions.

℞. Quininæ Sulphatis, . . . ʒss.
Ext. Belladonnæ, ... gr. ijss.
Ft. pil. no. xx. Sig.—Two pills every 4 hours, where much depression. (B.)

℞. Quininæ Sulphatis, . . . ʒj.
Ac. Sulphurici Dil., . . . q. s.
Aquæ, ... ℥ij.
Tincturæ Ferri Chlor., . . ʒss.
Spt. Chloroformi, ... ʒvj.
Glycerini, ... q. s. *ad* ℥iv.
M. Sig.—A teasp. in water every two hours. (*Loomis.*)

℞. Tinct. Ferri Chloridi, . . ℥j.
Syrupi Tolutani, ... ℥j.
Liq. Potassii Citratis, . . ℥iv.
M. Sig.—Teasp. to tablesp. according to age, every 3 hours. ʒj has ♏x, ʒij has ♏xx, ℥ss has ♏xl. (*Anderson.*)

℞. Tinct. Ferri Chlor., . . . ʒij–iij.
Glycerini, Aquæ, . . . āā ℥j.
M. Sig.—Teasp. every 2 hours for children. (*Gibney.*)

For Local Use.

℞. Ætheris,
Alcoholis, ... āā ℥v.
Pyroxylini, ... ʒj.
Solve, et adde—
Ammonii Iod., ... gr. xl.
Cadmii Iod.,
Cadmii Brom., . . . āā gr. xx.
M. Sig.—For local use with a camel's hair pencil. If the cadmium salts are not to be had use ʒj Ammon. Iod., and gr. xx of Pot. or Amm. Bromide. (*Humphreys.*)

℞. Plumbi Acetatis,
Ammonii Carb., . . . āā ʒj.
Aquæ Rosæ, ... ℥viij.
Ft. lotio. Sig.—Apply on lint, to allay irritation. (*Peart.*)

℞. Acid Carbol.,
Alcoholis, ... āā ʒij.
Ol. Terebinth., ... ʒiv.
Tinct. Iodi, ... ʒij.
Glycerini, ... ʒx.
M. Sig.—Brush over surface every 2 hours, and cover with a thin layer of wadding.

Erythema.

Antipyrin, internally, for the itching, is efficient. **Belladonna**, useful in cases resisting ordinary treatment (B). **Quinine**, the most valued remedy in erythema nodosum (B). **Rhus Toxicodendron**, a valuable remedy (P). **Zinc Sulphate**, as lotion, with Alum and Glycerin [see ECZEMA, for formula];

or the **Acetate**, in ointment [See below]. **Bismuth**, dusted over erythema about genitals of infants soothes pain and promotes healing (B). **Mineral Acids**, Nitric and Nitro-hydrochloric, have been advantageously used when from imperfect digestion (B). **Dusting Powders**, of Starch, Lycopodium or Buckwheat flour are very useful. **Thiol**, the dry form, as a dusting powder.

Prescriptions.

℞. Plumbi Carbonatis,
Bismuthi Subnit., . . . aa ʒj.
Sodii Bicarbonat., ... ʒss.
Ung. Zinci Oxidi Benz., . ℥ij.
Ft. unguentum. Sig.—Local use.

℞. Zinci Acetatis, ... gr. ij.
Aquæ Rosæ. . . . . ʒj.
Ung. Aquæ Rosæ, ... ℥j.
M. Sig.—Ointment.

Exhaustion.

Arnica, a few drops internally for aching of the muscles (R); in nerve prostration with general aching from over-fatigue (P). **Phosphorus**, for physical or mental exhaustion; also in depression from overwork (R). **Calcium Phosphate**, combined with **Calcium Carbonate** and **Ferric Phosphate**, gr. j of each for a dose (R). **Potassium Bromide**, when insomnia, bad dreams and irritability (R). **Opium**, gtt. j of Laudanum with 2 or 3 of the Tinctura Nucis Vomicæ, 3 or 4 times a day, for symptoms of exhaustion with headaches, flushing and dyspepsia (R). **Ammonia**, internally; its influence is but brief (R). **Coffee** or **Tea**, in hot or cold climates (R). **Castor**, is serviceable, but seldom used (P). **Musk**, benefits all forms of nerve-exhaustion (P). **Cimicifuga**, for headache from over-study or excessive fatigue (R). **Alcohol**, of value in all conditions of fatigue (P). **Coca**, lessens the sense of fatigue under exertion, relieves thirst, and obviates the effects of a too rarefied atmosphere; is suitable for weakly subjects easily fatigued, and to convalescents (P). **Cocaine**, has been used successfully in exhaustion from sunstroke, loss of blood, and diarrhœa (P). **Wet Sheet**, dripping, cold, as a restorative, and to prevent aching of muscles (R). **Sea Bathing**, is also valuable (R). **Habits**, change of occupation better than absolute rest. [Compare ADYNAMIA, CONVALESCENCE, INSOMNIA, MYALGIA, NEURASTHENIA.]

Exophthalmos.

Exalgin, has been used with some success in the treatment of exophthalmic goitre (Churton). **Belladonna**, ♏v of tincture hourly, of great service (R); results recorded from its use are very remarkable, but Digitalis will usually answer better (P). **Duboisine**, gr. $\frac{1}{120}$ of the sulphate 2 or 3 times daily, has produced remarkable results in one case (Hunt). **Opium**, may be of use in some cases (P). **Digitalis**, to raise the arterial tension and slow the heart, decidedly ameliorative in young subjects (B); to tranquillize the heart is the main indication. **Iron**, with Digitalis, seems to do more good than any other medicines (Da C). **Chalybeate Waters**, are beneficial (B). **Convallaria**, ameliorates the painful palpitation (Wa.) **Galvanism**, of the cervical sympathetic and pneumogastric, and eyes and thyroid gland, is decidedly curative in uncomplicated cases (B.)

Exostosis.

Potassium Iodide, may promote absorption when recent; also friction with ointment of **Mercury** or **Iodine** (D). **Aconite**, was used by Störck (P). **Mercury**, a moderate course of mercurials may be effectual, when exostoses due to a blow or from syphilis (D). **Exostoses** of clavicles in children almost always disappear themselves (D). Excision if required (MacCormac).

Eye-Diseases.

Belladonna, locally and internally in iritis, conjunctivitis and other inflammations. **Atropine**, in iritis, locally; hypodermically, in glaucoma (R); the best application in inflammatory conditions generally. **Euphrasia**, had an extended reputation in Germany, is a mild astringent, and of service in catarrhal conjunctivitis (P). **Pulsatilla**, as lotion in inflammations and ophthalmic cases (P). **Santonin**, gives good results in inflammatory and atrophic conditions of the retina and optic nerve, and in the stage of effusion of many other inflammations (Wa). **Ruta**, minim doses, night and morning, in dimness of vision depending on functional amaurotic condition, produces good results (P). **Physostigma**, topically, to contract pupils; to reduce excessive atropinization; stimulates the third nerve (P). **Strychnine**, hypodermically in muscular asthenopia, amblyopia, amaurosis, and in progressive nerve-atrophy not dependent on intercranial diseases (R); increases the sensibility of the eye, the field of vision becoming extended, and the vision more acute (Br). **Ergot**, useful in many eye affections, especially disturbances of accommodation, acute and chronic inflammations, and the blepharitis and pustular conjunctivitis of children (Wa): is myotic. **Pilocarpus**, is used with great benefit in many eye-affections, particularly amblyopia from alcohol and tobacco, detachment of the retina, chronic iritis, keratitis, hemorrhage into the vitreous, glaucoma, muscæ, atrophic choroiditis, hemorrhages of the retina, white atrophy of the optic nerve, and inflammatory affections with effusion and exudation, to promote resolution and absorption (Wecker). **Cocaine**, as a local anæsthetic in ophthalmic surgery, a 4 per cent. solution, by instillation, sometimes injection required, as into the muscles for squint operation; is mydriatic, and in some cases panophthalmitis has resulted after operations under Cocaine (R). **Chloroform**, vapor, close to a photophobic eye, relieves (R). **Oleate of Mercury and Morphine**, outside the eye in palpebral conjunctivitis, and stye; also in syphilitic iritis (R). **Silver Nitrate, Copper** and **Zinc Salts**, are much used (B). [See CONJUNCTIVITIS, etc. Compare MYDRIATICS, MYOTICS, pages 28, 29; also in this section the titles AMAUROSIS, ASTHENOPIA, CATARACT, CONJUNCTIVITIS, CORNEAL OPACITIES, GLAUCOMA, IRITIS, KERATITIS, MYOPIA, OPHTHALMIA, PHOTOPHOBIA, RETINA, STRABISMUS, etc.]

Eyelids.

Calomel, locally, or Brown Citrine Ointment, as an application in many diseases of the lids (B). **Mercury and Morphine**, the 20 per cent. ointment with Lard, outside lid, for stye (R). **Pulsatilla**, internally, and externally as wash, in ophthalmic cases and inflammations; the so-called "stye" may often be aborted by this treatment (P). **Cadmium**, much esteemed as collyrium, gr. ij of sulphate to ℥j aquæ rosæ (R). **Zinc** and **Copper Sulphates**, are esteemed applications (B). [See CONJUNCTIVITIS for formulæ.] **Ergot**, an aqueous infusion, as a collyrium, in ptosis and paralysis of the eyelids (Wa). **Tannin**, a strong solution (1 to 3 aquæ), locally; or a weaker solution (1 to 20, 30 or 50 aquæ), is much employed; also used in pomade, or as fine powder (Wa). **Veratrine**, in solution, brushed over lids once daily in painful spasmodic contraction of the orbicularis (Wa). **Ammonium Chloride**, in solution as lotion, for ecchymosis of eyelids, vulgarly known as "black eye." [See ECCHYMOSIS, BLEPHARITIS, CONJUNCTIVITIS, PTOSIS, ECTROPIUM, etc.]

Face.

Amyl Nitrite, ♏$\frac{1}{10}$ to ⅙, in 30 times its volume of spirits, for flushing of face, or sensation of flushing, with cold feet and hands, and great prostration, chiefly in women at change of life (R). **Curare**, effective in facial spasm, when other remedies failed (P). **Blisters**, behind the ear, in facial palsy, followed by warm covering to part (H). **Strychnine**, has improved some cases of facial palsy (P). [Compare ACNE, FRECKLES, NEURALGIA, ODONTALGIA, PAROTITIS, TIC-DOULOUREUX.]

False Pains.

Tartar Emetic, with small doses of Opium, and external fomentations, where evidence of congestion (L). **Opiates**, to allay uterine irritation, after rectifying any derangement of bowels (L). **Opium**, is valuable, having specific action on uterine muscular fibres, relaxing some, stimulating others (Wa).

Feet.

Arsenic, swelled feet of old or weak persons (R); œdema of feet and ankles in the old, from feebleness of the heart (B). **Lead**, as ointment of equal parts of Emplastrum Plumbi and Linseed Oil spread on linen, and wrapped round the feet when they sweat—to be renewed every third day for nine days (R). **Potassium Permanganate**, gr. j to ℥j solution, as wash, will remove fetor of feet (B); temporarily discolors the skin. **Boracic Acid**, in strong solution, is used with good results. **Chloral**, 1 in 50 of water, as bath, efficient. **Sodium Bicarbonate**, a solution freely applied will remove fetor (B). **Belladonna**, will check fetid secretions (R). **Salicylic Acid**, in solution with Borax, the most agreeable and efficient deodorant for fetid perspirations (B): ʒjss–iij with ℥iij of dried Alum, in powder, applied freely to feet after washing and drying. Acid. Salicyl. 3, Magnesium Silicate 87, is the composition of the powder used in the German army for sweating of the feet. **Ice**, to the spine, or heat and cold alternately, to equalize the circulation, has been strongly advocated (Wa). **Stockings**, should be changed every day, and dipped in a strong solution of Boracic Acid and dried, to effectually check fetid perspirations. **Cold Foot-bath**, and drying with friction, for cold feet (R). [Compare CHILBLAINS.]

Prescriptions.

℞. Ac. Salicylici, ... gr. xv.
Amyli, ... gr. cl.
Talci, ... ℥iij.
M. et trit. Sig.—Locally for sweating feet.
(*Kohnhorn*).

℞. Ac. Borici (pulv.), ... ʒjss.
Vaselini, ... ℥j.
M. Sig.—Ointment for bromidrosis.
(*Championnière*).

Fever.

[*See also the titles of the Fevers, in their alphabetical order.*]

Aconite, has the highest value in the eruptive fevers, also in all hyperpyrexiæ (B); always indicated in early stage of simple inflammatory fevers, pneumonia, and in most acute congestions (P); has marvellous power over sthenic fevers; thermometer should go hand in hand with Aconite (R). **Veratrum Viride**, possesses considerable power as an antipyretic; useful in rheumatism, pneumonia (P); in delirium ferox of fevers it is of value (B); strongly recommended in both sthenic and asthenic fevers (R). **Belladonna**, in the eruptive fevers, especially scarlatina (B); in typhus, with delirium, insomnia, painful sensitiveness to light and sound, and in all hyperæmic states of brain and spinal cord (P); is prophylactic often against scarlet fever (P, Pf); in delirium of fevers, also excellent in typhus (R). **Gelsemium**, in remittent and typho-malarial, of real benefit; is antipyretic (B); in bilious remittent, of value (Pf). **Arsenic**, in prostrating acute fevers to strengthen pulse and invigorate patient; except quinine, no drug subdues intermittents so well (R); in malarial, especially typho-malarial, it is of great value (B). **Cinchona.** Quinine in the eruptive and all malarial, remittent, and intermittent; as apyretic, less effective and more dangerous than cold baths; useless in typhus and typhoid, except for hyperpyrexia (B); it is anti-miasmatic, antiseptic, and antiphlogistic; and of great value in intermittent, septicæmic, and hectic fevers (P): large doses at night to reduce temperature in typhoid and other fevers, are strongly urged in Germany: Cinchonine best as prophylactic against ague (R). **Antipyrin**, the type, also the best of the new series of synthetical antipyretics, which includes Kairin, Phenacetin, Chinolin, Thallin, etc. (See pp. 58, 118, 195); is antipyretic and diaphoretic, moderates the intensity of the febrile movement, and is especially indicated in self-limited diseases with persistent hyperpyrexia, especially pneumonia, typhoid, etc. **Phenacetin**, the favorite antipyretic among the new synthetical compounds; is efficient and safe. **Kairin**, is an efficient antipyretic, but profusely diaphoretic, also a cardiac and nerve depressant of great power, and highly dangerous in pneumonia, and other fevers where the heart is weak; it often produces nausea and vomiting with headache and tinnitus aurium (P). **Resorcin**, has been given in acute rheumatism, typhoid, typhus, pneumonia, erysipelas, etc., as an antipyretic; like Kairin, however, its action in lowering temperature is transient as compared with Quinine or Salicylic Acid (P); may be used hypodermically as it is not irritant (B). **Salicylic Acid**, or Sodium Salicylate, nearly equal to Quinine as antipyretic; very useful in all forms with high temperature and in intermittents, especially in septicæmia, pyæmia, erysipelas, and surgical fevers (B, R). **Digitalis**, the German antipyretic; very useful in scarlet fever, rheumatic, and pneumonia (B); especially in typhoid (R). **Cimicifuga**, as substitute for Digitalis, but less effective; good in hectic (B). **Hydrastine**, intermittents, typhoid with copious sweats (P). **Arnica**, is antipyretic, full doses in sthenic cases, small (♏v of tincture) in asthenic; large and small doses produce different results (B); in rheumatic fever and typhoid it is highly extolled (P). **Camphor**, subdues reflex excitability; is praised as stimulant in adynamic fevers (P); in adynamic fevers and where there is delirium (R). **Mercury**, large doses of Calomel, the German "specific" treatment of typhoid (B); small doses in typhoid at commencement; has marked effect on tonsils in scarlatina (R). **Rhus Tox.**, in rheumatic fever after Aconite, and in scarlatina with typhoid symptoms, is invaluable (P). **Opium**, much less used than formerly; useful in delirium, and with Quinine in remittents and intermittents (B); fevers characterized by prostration, insomnia and delirium, noisy or muttering, with picking of bed-clothes and twitching of the muscles,—in such cases Opium, judiciously given, may save an almost hopeless case (R): Morphine, hypodermically, the best form in febrile diseases, being less disturbing to the stomach and digestive power (P). **Turpentine**, in typhoid, puerperal, and yellow, as a stimulant to vaso-motor nervous system (♏x–ʒss) (B); as enema (♏30–60 in starch mucilage with ♏x of Tinct. Opii if pain) invaluable when in typhoid hemorrhage occurs with tympanites (P, R). **Tartar Emetic**, minute doses (gr. $\frac{1}{16}$) frequently repeated, and with Opium, are of great value in many acute febrile diseases (B); as a diaphoretic; in ague; in large doses to abort specific fevers (R). **Muriatic Acid**, very useful in all forms, especially in typhoid and the exanthemata; relieving dryness of the mouth and fauces, increases digestion, and restrains the diarrhœa (B). **Acid Drinks**, such as raspberry vinegar, citric acid, etc., very grateful and useful (R, B); two sliced limes or lemons, with ℥ij of sugar, in Oj of boiling water, cooled and strained, make an agreeable refrigerant beverage (Wa). **Baptisia**, useful in common continued fever, or in the first stage of typhoid; drop doses of a fresh tincture every hour. **Eucalyptus**, has given varied results in malarial fevers, some observers praising it very highly (P). **Valerian**, has done much good in fevers of a nervous character (P). **Sumbul**, is used in Russia for low fevers of a typhoid type (P). **Cocculus**, for tympanites of typhoid (P). **Ammonium Acetate**, as a diaphoretic, and in simple forms, as catarrhal; the **Carbonate**, in scarlet fever and measles (R). **Purgation**, by Castor Oil, Magnesium Sulphate, etc., before exhaustion (R). **Mustard Bath**, on recession of rash in eruptive fevers (R). **Aliment**, milk and beef-tea alternately, every 3 hours; milk only, in fevers and inflammations of the digestive tract (B). **Alcohol**, in low conditions is useful when causes improvement in symptoms, which may become worse (R); Coffee better than alcohol (P). **Water**, is a valuable adjunct to remedies in the treatment of fevers. Warm baths, the wet pack, hot and cold compresses, fomentations, moist inhalations, etc., have great value [see various fever titles]: a most important agent. Cold baths or cold wet pack to reduce temperature (B); cold affusion, baths, packing, ice, and ice-bag; hot affusion and sponging, all of great value in every form (R).

Prescriptions.

℞. Tinct. Aconiti, ... ʒss–j.
Spt. Etheris Nitrosi, . . . ℥ij.
Glycerini, ... q. s. *ad* ℥ij.
M. Sig.—A teasp. every hour to an adult, as a febrifuge.

℞. Antipyrini, ... ʒss–j.
Aquæ Cinnam., ... ℥ij.
M. Sig.—A teasp. every 2 hours for children, to control pyrexia.

Fever, Simple.

Aconite, in small repeated doses, the best remedy for febricula, etc. (B); in ordinary febrile conditions, if given early, will abate fever and induce free perspiration; may be administered in conjunction with any other remedy indicated (R). **Veratrum Viride**, in small doses, as antipyretic (P, R). **Hyoscyamus** or **Belladonna**, very useful in febricula, especially for head symptoms and constipation (P). **Gelsemium**, when remittent or bilious symptoms (P). **Arsenic**, if typho-malarial symptoms (B). **Phenacetin**, in hourly doses of gr. iv or less, in the simple continued fever of children, as antipyretic. **Hydrochloric Acid**, in the continued fever of childhood, has a beneficial influence (West). **Valerian**, when nervous excitability (P). **Lemon-juice**, as "lemonade," or with Potassium Bicarbonate as a mild diaphoretic and diuretic (P). **Pomegranate-juice** is very grateful if mixed with sugar or honey (P). **Bromides**, gr. ss–j every quarter-hour are excellent for the febrile disturbances of children (Smith). **Baths**, warm, in simple fevers of children (R). **Aliment**, milk and beef-tea alternately every 3 hours, the most useful (B).

Prescriptions.

℞. Ac. Hydrochlor. Dil., . . ʒss.
Spt. Ætheris Co., ... ʒjss.
Syr. Rosæ, ... ℥ss.
Aquæ Camph., . . q. s. *ad* ℥iv.
M. Sig.—Teasp. to tablesp., according to age, every 6 hours.
(*Modified from West.*)

℞. Potassii Acetatis, ... ʒij.
Spt. Ætheris Nitrosi, . . . ʒiv.
Syr. Simplicis, ... ℥j.
Liq. Ammonii Acetatis, . ℥ij.
Aquæ Camphoræ, . q. s. *ad* ℥viij.
M. Sig.—Teasp. to tablesp. doses, according to age. Diaphoretic and antifebrile.

Fistula.

Piper Nigrum, the confection, as a gentle stimulant in anal fistula (P). **Iodine**, by injection, sometimes curative, but generally fails (Wa). **Sanguinaria**, as injection, has cured (P). **Capsicum**, the weak infusion, a useful stimulant in fistulous ulcerations (P). **Glycozone**, ʒj in ℥j of lukewarm water, as enema once or twice daily, soon produces good effects in cases of fistula in ano (Edson). **Surgical.** Division of sphincter in anal fistula, by knife or ligature, the best treatment (D); in fistula lachrymalis, dilatation of passage by probing the canaliculus, or slitting the canaliculus up (D); in vesico-vaginal, or recto-vaginal, surgical methods best. **Diet** should be nourishing and digestible; fresh air and general hygienic conditions are necessary (R). **Bismuth Subiodide**, dusted over the surface of the wound after washing, to stimulate granulations when healing process is indolent, is remarkably efficient.

Flatulence.

Nux Vomica, will remove flatulence and intestinal indigestion (B); when constipation, heartburn, weight on head (R). **Charcoal**, gr. v or x, soon after or just before meals (R); mixed with Bismuth (R). **Chloroform**, pure, in drop doses, benefits (R); by far the best agent in flatulent dyspepsia to prevent flatulence, always given well diluted (Huchard). **Carbolic Acid**, when no acidity present (R). **Turpentine**, gtt. iij–v on sugar, will quickly relieve (B). **Strontium Bromide**, is excellent in flatulence from decomposition. **Asafœtida** or **Valerian**, quickly relieves the flatulence of hypochondriasis (P). Asaf. ʒj of tinct. to O½ water, dose ʒj; useful for children (R). **Sodium Sulpho-carbolate**, gr. xxx after eating, will be found very serviceable (R). **Phosphoric Acid**, dilute, is often promptly alleviative. **Anise**, the Oil, also Ether, or any other member of the carminative group, (See page 37), will promote the expulsion of gas from the stomach and intestines. **Mercury**, when with clayey stools (R). **Calumba**, an effective remedy for flatulent disposition is an infusion of ℥ss each of Calumba and Ginger, ʒj of Senna, hot water Oj, a wineglassful ter die (P). **Potassium Permang.**, in flatulence attendant on obesity (B). **Physostigma**, flatulence of women at climacteric (B). **Sulphurous Acid**, in 5 to 10 minim doses, when flatulence due to fermentation (R). **Diet.** Abstain from sugar, starchy food and tea—especially sugar; eat little, slowly and regularly, as a general rule abstain from alcoholic drinks and vegetables, especially cabbage. **Pepsin** or **Ingluvin** after meals, to promote digestion (R). [Compare Colic, Dyspepsia.]

Prescriptions.

℞. Tinct. Nucis Vomicæ,
Tinct. Physostigmatis,
Tinct. Belladonnæ, . . aa ʒj.
M. Sig.—Fifteen drops twice daily in a little water.

℞. Tinct. Illicii Anisati,
Tinct. Gentianæ,
Tinct. Nucis Vomicæ, . aa ʒj.
Chloroformi, ... ♏xv–xxx.
M. Sig.—8 to 10 drops in a winegl. of water, before meals.

℞. Gummi Camphoræ,
Pulv. Zingiberis,
Pulv. Capsici, ... aa gr. j.
Ft. pil. no. vj. Sig.—One pill as required for gastric and intestinal flatulence.

℞. Bismuthi Salicylatis, . . . ℥iv.
Magnes. Calcinat., . . . ℥iv.
Pulv. Carb. Ligni, ... ℥vj.
Olei Anisi, ... ℥ij.
Ft. pulv. Sig.—A teaspoonful before each meal. (*Huchard.*)

Flushing-heats.

Nux Vomica, ♏ij of the tinct. with ♏j of Laudanum in hysterical flushings of the middle-aged, with flatulence, weight on head and perspirations (R). **Amyl Nitrite**, ♏ $\frac{1}{10}$ to ⅙ in thirty times its volume of rectified spirits, is effective for flushing of face, or sensation of flushing, followed by coldness, with cold feet and hands and great prostration occurring at climacteric chiefly (R). **Potassium Bromide**, at climacteric, with mental depression (R). **Zinc Valerianate**, or **Valerian**, flushings at the climacteric (R). **Eucalyptol**, for the flushings, palpitations and flatulence incident to the change of life (R).

Foreign Bodies.

In the Eye,—Remove by bathing, or wiping towards the lower inner corner with a soft, moistened handkerchief, or a bent bristle, the two ends being held in the fingers. Use tepid solution of Vinegar (ʒss to ℥j) for removing lime, tepid water for powder; then apply a weak Zinc or Alum collyrium, or instil a solution of Atropine (gr. ij to the ℥), or Cocaine, 4 per cent. **In the Ear**,—Examine carefully with speculum before removal; first syringe with warm water, or a drop of sweet oil to drive out insects, before using the forceps;

apply equal parts of Laudanum and Olive Oil, a few drops on cotton, if much pain. **In the Nose,**—A current of tepid salt water, forced up one nostril, may force down the body through the other, if the mouth be held open. **In the Larynx or Pharynx,**—if water can be swallowed, the obstruction is in the trachea. Never push a body down. Remove by curved forceps or blunt hook. If passed into the stomach use solid diet to imbed the article. If all fail and the case be urgent, resort to catheterism or tracheotomy. **In the Flesh,** —remove at once by forceps, or sponge and water. [Compare ASPHYXIA and APNŒA.]

Fractures and Dislocations.

Arnica, internally is excellent to neutralize the ill effects of mechanical injuries, ♏v–x in a wineglassful of water every 2 or 4 hours; when used after amputations, it certainly has the power of promoting the rapid union of the surfaces: the infusion is better than an alcoholic preparation for external use (P). **Aconite,** quickly and repeatedly, if feverish symptoms ensue (P). **Iodine,** internally and by friction, occasionally useful in ununited fractures (Wa). **Calcium Phosphate,** promotes formation of callus (Wa). **Opium,** useless in surgical fever, and may do harm (Cl); for nervousness or muscular spasms after dressing, gr. ¼ of Morphine hypodermically as anodyne (Ag). **Benzoin,** the tincture on lint, as a dressing for compound fractures and other severe injuries, leads to rapid and satisfactory healing (Bryant). **Carbolic Acid,** 1 to 20 or 1 to 40 solutions, for irrigation and dressings in compound fractures, obviates pyæmia and most of the other preventable causes of death (P). **Lead-water and Laudanum,** on lint, or a **Calendula** lotion to the part, after reduction of the injury, with Morphine hypodermically and perfect quiescence. **Diet,** should be very simple for a week or ten days. [Compare WOUNDS.]

Freckles.

Resorcin, as paste with Zinc Oxide, applied to the face, to promote peeling of the skin and removal of freckles and other superficial spots (Unna). [See under ACNE.] **Iodine,** the tincture or glycerite, locally (B). **Liquor Potassæ,** ʒj to ℥ij aquæ rosæ, as a lotion (Todd). **Benzoin,** the compound tincture with water, as cosmetic to remove freckles (P). **Sodium Borate,** a saturated solution of Borax is a safe and often efficient lotion to remove freckles (B). **Lime-water,** and Olive Oil, equal parts, with a little Liq. Ammoniæ, as liniment (Wa). **Potassium Carbonate,** makes a good lotion for freckles, sunburn and tan (B). **Mercury,** the Bichloride, with Alcohol and Glycerin, as a lotion, has been found effective: Donovan's solution, ♏lxxx to ℥viij of water, of which ℥j every three hours, has been found highly successful (Wa).

Prescriptions.

℞. Potassii Carbonatis, . . . ʒiij.
Sodii Chloridi, ... ℥ij.
Aquæ Aurantii Flor., . . ℥ij.
Aquæ Rosæ, ... ℥viij.
M. Sig.—Face-wash. (B.)

℞. Hydrarg. Chlor. Corr., . . gr. vj.
Ac. Hydrochlor. Dil., . . ʒj.
Alcoholis, Aq. Rosæ, . āā ℥ij.
Glycerini, ℥j, Aquæ, . *ad* ℥viij.
M. Sig.—Apply at night, and wash off in the morning.

Gangrene.

Salicylic Acid, pure, in powder locally, to destroy fetor and change the character of the morbid action (B). **Carbolic Acid,** acts in the same way (B); a 1 per cent. solution as lotion in gangrenous ulcers (Wa). **Sodium Sulphite,** in solution, 1 to 5 or 10 of water, as lotion or applied on compresses, to destroy odor, soothe pain and restore healthy action (Wa). **Ammonium**

Chloride, in solution as bath and fomentations, very successful in one case of senile gangrene (Wa). **Cinchona**, or better, Quinine, as the Hydrochlorate, has often proved of value (P); generally decoction of Cinchona best (Wa). **Turpentine**, locally, after removal of gangrenous part, a most efficient application (B); by stomach and inhalation from hot water in gangrene of lungs; the oil locally in dry and chronic gangrene (P). **Sanguinaria**, has been recommended (P). **Oxygen**, as gaseous bath in senile gangrene (R). **Charcoal**, as poultice, value doubtful (R). **Citric Acid**, Lemon-juice dropped into wound, which is then covered with lint steeped in a solution of Chlorine; very effective for hospital gangrene, in Parisian hospitals [*Lancet*, October, 1879]. **Ferric Chloride**, locally, is considered superior to the mineral acids (Wa). **Nitric Acid**, strong, applied carefully until the ulcer is converted into a firm, dry mass (Wa); is probably the best escharotic, next to Bromine, for gangrenous destruction (B). **Bromine**, is the best escharotic for hospital gangrene (B). **Chromic Acid**, is a very efficient caustic, penetrating deeply with but little pain (B). **Opium**, to soothe the pain, and diminish restlessness and irritability (Wa).

Gastralgia, Gastrodynia.

Resorcin, internally, acts exceedingly well. **Opium**, in some form necessary to relieve the pain in severe cases (Da C). **Morphine**, is of great value (P); subcutaneously in epigastrium very efficient, or in small doses with Bismuth and milk before meals (R). **Belladonna**, is useful in painful affections of the stomach (R). **Atropine**, often relieves promptly, and is excellent in neuralgic pain of the abdominal viscera (P). **Nux Vomica**, an excellent stomachic, gtt. v–x of tincture before meals (B); gtt. j–ij every 2 hours in many forms of gastric derangement (R). **Strychnine**, hypodermically for gastralgia and gastrodynia (R); in very small doses, gr. $\frac{1}{100}$–$\frac{1}{32}$, two or three times daily, a very successful remedy (P). **Arsenic**, sometimes dissipates the pain surprisingly (B); a drop of Liquor Arsenicalis before food in irritative dyspepsia and gastralgia with heartburn (R). **Bismuth**, when gastralgia due to irritation of mucous membrane, acts well alone, but is most efficient when given with aromatic powder and a little Morphine (R); or a combination of Bismuth and Arsenic in more chronic cases (B); Subcarbonate is especially adapted to gastralgia with laborious digestion and putrid or acid eructations (Wa). **Manganese**, the Black Oxide in gastrodynia and pyrosis (R). **Zinc Oxide**, an excellent remedy when gastralgia after food, gr. v–x with aromatic powder and Morphine, before meals (B). **Silver Nitrate**, in solution to check the pain of many stomachal disorders (R); a pill of gr. ss, with Extr. Hyoscyami gr. ij–iv (Wa). **Hydrocyanic Acid**, often cures rapidly when gastralgia from nervous derangement (B); may check vomiting as well as relieve pain (R); Cherry-laurel water a useful form (P). **Nitro-hydrochloric Acid**, gtt. ij–iij of the dilute acid, is serviceable (Da C). **Æther**, a few drops or the compound spirit ♏x–xx, often relieves quickly (B). **Chloroform**, ♏ij–v on sugar, often relieves (B). **Chloral**, sometimes relieves pain in gastralgia (R). **Pulsatilla**, is efficient in many cases of painful dyspepsia, with coated tongue, headache and nervous depression (P). **Pepsin**, when gastrodynia from indigestion (P). **Creosote**, checks pain after food (R). **Alum**, often affords relief (B). **Ergot**, of value in visceral neuralgiæ (P). **Alkalies**, for pain in stomach, Liquor Potassæ generally employed (R). **Quinine**, in cases showing periodicity, and those of neuralgic type (P). **Sodium Salicylate**, for gastralgia with fermentation (R). **Nitroglycerin** allays the pain speedily (B). **Carbonic Acid Water**, in painful and irritable conditions; may be mixed with milk (R). **Milk-cure**, very efficacious in obstinate cases (B). **Galvanism** of the pneumogastric, and locally to the organ itself (B). **Aquapuncture** has given extraordinary relief (B). **Diet** is of the greatest importance; food should be easily digestible, varied and plainly cooked; sedentary livers should refrain from much animal food; meals should be regular and frequent, eating little at a time, and that very slowly. Alcoholic beverages do harm as a rule, but may benefit particular cases. Eating should be done in as agreeable a frame of mind as possible, and the patient should rest for a time after a meal. [Compare ACIDITY, DYSPEPSIA, NEURALGIA.]

Prescriptions.

℞. Morphinæ Sulph., ... gr. j.
Ac. Carbolici, ... ℥ss.
Aq. Menth. Pip., . . q. s. *ad* ℥iv.
M. Sig.—Teasp. thrice daily.
(*Da Costa.*)

℞. Bismuthi Subnit., ... ʒij.
Ac. Hydrocy. Dil., ... ʒss.
Mucil. Acaciæ,
Aq. Menth. Pip., ... āā ℥ij.
M. Sig.—Tablesp. thrice daily.

℞. Atropinæ Sulph, ... gr. j.
Zinci Sulph., ... ℥ss.
Aquæ Destill., ... ℥j.
M. Sig.—3 to 5 drops two or three times daily. (B.)

℞. Bismuthi Subnit.,
Magnesii Carb., ... āā gr. xvj.
Ac. Hydrocy. Dil., . . . ♏x.
Aquæ, ... ℥iv.
M. Sig.—Dessertsp. for a child of 3 years in flatulent gastrodynia and gastralgia.

℞. Ac. Hydrocy. Dil., . . . ℥ij.
Aq. Laurocerasi, . q.s. *ad* ℥iv.
M. Sig.—Teasp. every 4 hours.

℞. Pepsini, ... ʒj.
Ac. Hydrochlor. Dil., . . ℥ss.
Glycerini, ... ℥jss.
Aq. Cinnam., ... ℥ijss.
M. et. filtra. Sig.—Tablespoonful doses for slow and feeble digestion.

Gastric Dilatation.

Carbolic Acid, internally to allay fermentation, with an occasional washing by the stomach pump (Da C). **Strychnine**, hypodermically or by the mouth, or **Nux Vomica**, the best remedy, conjointly with washing of the stomach and strict diet (Da C). **Bismuth Subnitrate**, with Magnesia or Soda, or Lime-water frequently, for the acidity, which is one of the most distressing symptoms (Fenwick). **Bismuth Salicylate**, as an internal antiseptic, is highly praised. **Salophen**, relieves the fermentive disturbances. **Diet**, should be free from all starch and sugar, and from vegetables of any kind (Fenwick); milk not advisable, as much fluid will further dilate the organ; solids better, as small quantities of dry, stale bread, or gluten bread, and underdone meat (Da C).

Gastritis, Acute.

Mercury, Calomel in broken doses, with ice, frequently swallowed, for the idiopathic form, which is occasionally seen and cannot be distinguished from that due to irritant poisons (Da C). **Bismuth**, Subnitrate or Subcarbonate in full doses after more acute symptoms have abated (Da C). **Morphine**, hypodermically for pain (B). **Ice**, internally and externally gives great relief (R). **Aliment** should be given per rectum; no food, except milk and Lime-water, being admitted to the stomach for some time (Da C). **Antidotes**, in cases of irritant poisoning, as Alkalies to neutralize acids, Dialyzed Iron or the Hydrated Sesquioxide for arsenic, Turpentine for phosphorus, etc. [See page 53, *ante.*] Then Oil, Albumen or milk, to protect the mucous membrane, stimulants, Opium, Ammonia, etc., to antagonize the depression of the vital powers.

Gastritis, Chronic.

Arsenic, sometimes surprisingly curative; for the vomiting gtt. j–ij of Fowler's solution before meals (B). **Pulsatilla**, in subacute gastritis of phlegmatic temperaments, white tongue, heartburn, nausea, flatulency, little or no taste (P). **Hydrastis**, gtt. v–xv of tincture or fluid extract, daily before meals, especially for gastric catarrh of acute alcoholism (B). **Nux Vomica**, gtt. j of tincture every 5 to 10 minutes for 8 or 10 doses, in acute gastric catarrh, with headache or sick-headache; also drop or 2-drop doses every 2 hours or oftener, when chronic gastric catarrh occurs in the course of chronic disease (R). **Cinchona**, to promote healthy state of mucous membrane, the infusion best with mineral acids, or Quinine; the Red Bark in gastric catarrh of drunkards (B). **Alkalies**, either shortly before meals, to stimulate production of gastric juice; or some hours after, to neutralize the acids of decomposition (Da C). **Pepsin**, gr. v immediately after a meal, to assist digestion (Da C). **Podophyllum**, in small doses at night, to act on upper bowel. Purgation as a method of treatment stands at the head (Da C). **Ipecac**, in small doses may prove highly useful, ♏v–x of the wine (P); for the nausea and vomiting (R). **Tannic Acid**, in 4-grain doses with a drop of Glycerin to make a pill (B). **Bismuth Salicylate**, as an internal antiseptic, is highly praised in chronic gastric affections. **Strontium Bromide**, gave successful results in 32 cases of gastric catarrh (Sée). **Resorcin**, acts exceedingly well. **Glycozone**, is one of the best remedies for the chronic gastric catarrh of alcoholism, and that from other causes (Edson). **Hydrocyanic Acid**, is much used (R); in subacute gastritis it often proves useful given in an ordinary effervescing draught (Wa). **Silver Nitrate**, in ¼ or ½-grain doses with Opium if pain, or preferably Belladonna, is extremely useful (Da C); to check pain and vomiting (R). **Silver Oxide**, is nearly as good as the nitrate, and not liable to produce staining (Da C). **Opium**, or **Morphine**, to quell pain in chronic gastritis from alcoholic excess (R). **Eucalyptus**, a most useful stomachic, not to be used in inflammatory states (B); is used with benefit (R). **Mercury**, the Yellow Oxide, in doses of gr. $\frac{1}{60}$–$\frac{1}{30}$, in chronic form. [See under DYSPEPSIA.] **Calumba**, and other bitters are useful (B). **Ammonium Chloride**, in high repute in Germany (B). **Caffeine**, especially when associated with migraine (B). **Bismuth**, is very useful in chronic gastritis, especially that of drunkards, and the chronic gastric catarrh of children with vomiting (R); invaluable for its sedative, alterative and astringent action; 10–15 grain doses several hours after meals (Da C). **Lead Acetate**, in chronic gastritis with gastralgia and pyrosis, may be combined with Morphine beneficially (B). **Alum**, when vomiting of glairy mucus (B). **Aliment**, such as will be digested in the small intestines; requires careful attention; the milk-cure has been very effective in bad cases; malt liquors are harmful (B). Mineral waters of purgative type, to keep the portal system drained. Exercise is not beneficial; better live quietly, and occasionally spend a day or two in bed (Da C). Kumyss very agreeable, and tolerant to stomach; the milk-cure and buttermilk have been very efficient. The farinaceous vegetables, rice, tapioca, arrowroot, aërated bread. [Compare DYSPEPSIA, GASTRALGIA.]

Prescriptions.

℞. Sodii Bicarbonat., . . . ʒjss.
Tinct. Aurantii Cort., . . ℥ss.
Infusi Calumbæ, . q.s. *ad* ℥viij.
M. Sig.—Two tablesp. before each meal. In chronic gastric catarrh.

℞. Aluminis, ... ʒij.
Ext. Gentianæ, ... ʒss.
M. Ft. pil. no. xxx. Sig.—Two twice daily.

℞. Argenti Oxidi, ... gr. xij.
Ext. Belladonnæ, ... gr. iij.
Olei Caryophylli, ... gtt. xx.
M. Ft. pil. no. xxiv. Sig.—One pill twice daily. (*Da Costa.*)

℞. Magnesii Sulphatis, . . . ʒj-ij.
Sodii et Potassii Tart., . . ʒss-j.
Ac. Tartarici, ... gr. xx.
Sig.—Dissolve in a glass of water, and drink, an hour before breakfast.

℞. Sodii Bicarbonat., ... gr. lxxx.
Spt. Chloroformi, ... ʒjss.
Tinct. Gentianæ, ... ℥ss.
Infusi Rhei, ... ℥iv.
Aq. Menth. Pip., q. s. *ad* ℥viij.
M. Sig.—A tablesp. or two before each meal In chronic gastric catarrh, with flatulence.

Gastric Ulcer.

Arsenic, Fowler's solution in drop doses lessens the pain and relieves the vomiting remarkably (B); has given relief when commonly-used remedies failed (R); gives good results when used in very small doses (Da C). **Bismuth**

relieves pain and vomiting, and contributes to the cure (B). [See under GASTRALGIA for formulæ.] **Silver Nitrate**, in solution, to check pain and relieve the vomiting (R); is next in value to Bismuth, promoting cicatrization and easing the pain (B). **Silver Oxide** is equally efficient, and is not liable to produce staining (Da C). **Atropine**, often happily relieves the pain and vomiting even when given in very small quantity (B). **Morphine**, for the pain and vomiting (R); in full doses if perforation occurs, to localize peritonitis until adhesions take place (Da C). **Ergotin**, 1 part to 10 of water, of which gtt. xv hypodermically several times a day for the hemorrhage. **Gallic Acid**, in 5-grain pill every hour for hemorrhage. **Lead Acetate**, is sedative and hemostatic; gr. ss–ij in pill with Opium, very useful to check hemorrhage and allay pain (R). **Turpentine**, 5 to 10 drops frequently repeated in hemorrhage (R). **Resorcin**, acts very well; its analgesic property herein is so marked that the stomach is enabled to tolerate food (Pope). **Glycozone**, is the best of all known agents for the treatment of gastric ulcer (Edson); should be given on an empty stomach, one or two teasp. in a wineglassful of water. **Charcoal** is said to ease the pain by preventing formation of acid products (R). **Mercury**, Corrosive Sublimate an effective remedy; gr. $\frac{1}{60}$–$\frac{1}{30}$ thrice daily before meals (B). **Pepsin**, by facilitating digestion, is useful (B). **Iron**, for the anæmia; the Lactate or Ammonio-citrate if stomach irritable (Da C). **Ice-bag**, to the epigastrium, for pain and vomiting, etc. (R). **Nutrient Enemata**, to rest the stomach. [See under ENEMATA for formula.] Brandy may be added, also Laudanum, gtt. x–xx, if the rectum is irritable (B). **Milk-cure**, has succeeded admirably (B); a strictly skimmed milk diet with Lime-water, 2 parts of milk to 1 of Aqua Calcis (Da C). **Diet**, should be of non-irritating character, which, with cold or hot compresses to the epigastrium, leaves little room for medicine. In bad cases nourish per rectum, so as to give the stomach complete rest; in any case such food as is chiefly digested in the small intestines, farinaceous vegetables, rice, arrowroot, etc. A nice change from milk diet is a warmed pancreas, chopped up with rare meat, being nutritious and well relished (Da C). **Rest**, in bed for several months is imperative (Da C). **Defibrinated Blood**, by injection into rectum, in doses of from ℥iij–vj (A. H. Smith). [Compare HEMATEMESIS.]

Prescriptions.

℞. Argenti Oxidi,
Ext. Hyoscyami, . . . aa gr. x.
Ft. pil. no. xx. Sig.—One pill thrice daily before meals.

℞. Bismuthi Subcarb., . . . ʒiij.
Morphinæ Sulph., ... gr. j–ij.
Pulv. Aromat., ... ʒj.
Ft. pulv. no. xij. Sig.—One powder in milk before each meal.

℞. Argenti Nitratis, ... gr. v.
Ext. Opii, ... gr. iij.
Ft. pil. no. xx. Sig.—One pill thrice daily.

℞. Argenti Oxidi, ... gr. v.
vel Zinci Oxidi, ... ʒss.
Morphinæ Sulph., ... gr. j–ij.
Ft. pil. no. x. Sig.—One pill thrice daily, before meals.

Glanders and Farcy.

Ammonium Carbonate, in water, hourly, as concentrated as can be swallowed, followed by an opiate, and preceded by an emetic of Ipecac, and an incision into each of Wharton's ducts; proved successful in a case of acute glanders (Wa). **Carbolic Acid**, and the **Sulphites**, as Sodium Sulphite, are most worthy of trial. **Creosote**, or **Carbolic Acid**, in Glycerin, locally (Wa); or dilute Chlorinated Soda, and Lime-water. **Escharotics**, to destroy the affected spot, if inoculation occurs. **Iodine**, internally, also **Arsenic** and **Strychnine**, have been recommended. **Quinine**, in large doses, and **Ferric Chloride**, may be useful. **Potassium Iodide**, grs. 150 daily, with baths in Hot Springs of Arkansas, conquered the disease in me, probably the only man who ever survived it. (Dr. Paul Paquin, Univ. Mo.) No drug yet tried has any marked specific effect on the disease (Durham).

Glandular Enlargements.

Iodine and **Iodides**, no remedy more efficient, when simple hypertrophy; useless (with all other medicines) when caseation or suppuration has set in. Iodine injected into cystic and glandular growths of neck: Syrup of Ferrous Iodide occupies an important place (B). Potassium Iodide for mammæ and testicles, but especially for thyroid (R). **Iodoform** is equal, if not superior to Iodine, in enlarged scrofulous glands, and other glandular swellings (Wa). **Lead Iodide**, as an ointment. **Ung. Hydrarg. Iodidi Rubri**, produces very striking effects in goitre, enlarged spleen, etc. (B). **Sulphides**, especially the Blue Lick water, are said to abort or to mature suppuration in glands (R). **Calcium Sulphide**, for hard, swollen glands behind the angle of the jaw, with deep-seated suppuration (R). **Calcium Chloride**, highly useful in strumous inflammation and suppuration (B). **Pilocarpus**, is curative in acute affections of parotid and submaxillary glands (B). **Mercury**, useful in acute inflammatory states, tonsillitis, parotitis, etc.; Hydr. Chlor. Corr. gr. $\frac{1}{20}$ or Hydr. cum Creta, gr. $\frac{1}{5}$, every two hours (B). The Oleate of Mercury and Morphine in obstinate and painful tonsillitis, and inflammation of lymphatic glands (R). **Aurum.** The Bromide of Gold and Arsenic rendered good service in a case of adenitis with enormous enlargement of the left side of the neck (E. A. Wood). **Belladonna**, especially in tonsillitis (P). **Valerian**, with **Guaiacum**, in strumous enlargement (P). **Hydrastis**, frequently controls (P). **Carbolic Acid Injections**, a 2 per cent. solution injected into substance of gland (B). **Electrolysis**, used by me to remove a number of swollen and painful lymphatic glands in the neck (Remak). By the use of strong and often interrupted faradic currents multiple indurated lymphatic tumors have been removed or diminished (Meyer). Enlarged glands have been repeatedly cured by electrolysis (B). [Compare BUBO, WEN, GOITRE, TABES MESENTERICA, PAROTITIS, TONSILLITIS, etc.]

Glaucoma.

Atropine, gr. $\frac{1}{60}$ hypodermically beneficial (Anstie); imprudently used has caused the disease (Graefe, Wells). **Eserine**, lowers intra-ocular tension, and is indicated with **Quinine**, in all cases of threatened glaucoma, to preserve the eye from the risk of consecutive glaucoma, and after iridectomy or sclerotomy (Wecker). **Iridectomy**, the only remedy for the disease, medicine being worse than useless; the operation should be performed as soon as a state exists which can be called glaucomatous; even when vision is lost, the operation will best relieve the pain (C): almost a certain cure in early stages; in later nearly always palliative and often curative. **Drainage of Eye**, by gold wire or catgut, has had success (Wecker).

Gleet.

Cantharides, in drop doses, when frequent desire and pain in region of prostate (R); of benefit in subjects of relaxed fibre and feeble circulation (B). **Blisters**, to the perinæum, of undoubted benefit (R). **Piper Methysticum**, has cured obstinate gleet (Switzer). **Bismuth**, 1, Glycerin 1, water 6 parts, as an injection, often useful in gleet (R). **Eucalyptol**, is used with benefit in chronic catarrh of the genito-urinary tract (R). **Iron**, the Tincture of the Chloride, ʒss in Oss of water with ʒj of Laudanum, makes a good injection for gleet (R); internally for anæmic subjects (St). **Mercury**, ½ grain of Corrosive Sublimate in ℥vj of water, is a good injection in gleet, used every 2, 3 or 4 hours (R); Donovan's Solution in doses of 10 minims thrice daily, so uniformly successful in controlling chronic urethral discharge as to be almost a specific for gleet. **Zinc Salts**, the Sulphate or Chloride, gr. ij of the latter to a pint of water, as injection every hour (R). **Bougies**, of gelatin, medicated with astringents, are extremely efficient. **Turpentine**, in moderate doses, when due to relaxed condition (R). **Copper Sulphate**, a solution as injection (R); astringent injections may be used with benefit (Wa). **Copaiba,** smeared on a bougie, and introduced into the urethra, will sometimes cause gleet to yield (Wa). **Sandalwood Oil,** ♏xv ter die (R). **Glycerite of Tannin,** with equal quantity of Olive Oil or mucilage, as injection, ʒij enough; persevere 8 or 10 days after discharge ceased, and do not use at bedtime (R). **Balsams of Peru and Tolu, Buchu, Canada Balsam, Copaiba, Mastic,** and **Tannin,** are used with advantage (P. R). Gleet is often kept up by over-treatment, will some time or other come to an end (St). **Diet and Habits** important. Stimulants, both solid and liquid, should be rigidly avoided, also coffee. Frequent ablutions, fresh air, good nourishment. [Compare GONORRHŒA.]

Prescriptions.

℞. Tinct. Ferri Chlor., . . . ʒvj.
Tinct. Cantharidis, . . . ʒij.
M. Sig.—15 drops in water three times daily.

℞. Zinci Sulphatis, ... gr. iij.
Ac. Carbol., ... ♏ij.
Ext. Hydrastis,
Ext. Belladonnæ, . . aa . gr. vj.
Gelatini, ... q. s.
M. Ft. bougia no. vj. Sig.—One in urethra at bedtime.

℞. Pulv. Cantharidis, ... gr. iij.
Ol. Terebinth, ... ʒj.
M. Ft. pil. no xij. Sig.—One thrice daily in obstinate gleet. If strangury occur, stop for a day or two.

℞. Ac. Tannici, ... gr. x.
Bismuthi Subnit., ... ʒij.
Aq. Rosæ, ... ℥vj.
M. Sig.—Shake and use as an injection thrice daily. (*Maury.*)

Glossitis.

Bismuth, gr. xx of Subnitrate with ℥j of Glycerin and ℥vij of water, as lotion, for erythematous inflammation of tongue (A). **Purgatives,** with gargles, leeches, antiphlogistic regimen generally (D). **Quinine** and **Iron,** should be given internally, with dilute acid washes, and free purgation (Cl). **Alum, dry,** powdered, may be dusted on tongue (Cl). **Leeches,** applied beneath the jaw, if symptoms are urgent (Cl). **Abscess,** should be opened, if any form. **Incisions,** along superior surface, followed by vapor of hot water, may instantly relieve congestion (A). **Tracheotomy** or **Laryngotomy,** if suffocation is immiment (A).

Glottis, Œdema of.

Emetics, non-depressing when œdema slight (A). **Inhalations,** of steam with Benzoin, or Conium, of great service (A); or of Tannin, gr. viij or x to ℥j of water; or Alum, gr. x to the ℥, or a saturated solution of Potassium Chlorate, all as spray (Walker). **Ethyl Iodide,** by inhalation, proved curative in one case in which it was repeated twelve times (Sée). **Scarification,** by laryngeal lancet, of paramount value (A). **Tracheotomy,** if the above fail (A). O'Dwyer's laryngeal tubation promises well. [Compare CROUP, LARYNGITIS.]

Goitre.

Iodine, is curative in simple hypertrophy (ordinary goitre) used both internally and externally: deep injection of the tincture is very successful in cystic degeneration of the gland (B); also in the fibrous and fibro-cystic varieties, if injection be made into the tumor; dangerous, if into a vein or into the surrounding areolar tissue (Wa). **Mercuric Iodide,** as oint. assisted by the sun's rays, a piece the size of a large pea rubbed in daily, very successfully used in India for simple hypertrophy (R): the official Unguent. Hydrarg. Iodidi Rubri, 1 in 10 daily (B); is too strong (Gross); gr. xv to the ℥ strong enough for the worst cases (Wa). **Potassium Iodide,** internally, also externally as ointment, in simple hypertrophy of the gland (R). **Strychnine,** gr. $\frac{1}{18}$ thrice daily, has been successful in several cases (Holmes). **Ferric Chloride,** injections of the solution used in thirty-eight cases with curative results (Mackenzie). **Ergotin,** injected with benefit into the parenchyma of the goitre (P); also used hypodermically with good results (Wa). **Ammonium Chloride,** as an internal remedy has proved curative (Stevens). **Electrolysis,** has sometimes cured in cases of simple hypertrophy and cystic gland (B); 6 out of 14 test cases of goitre were absolutely cured by electrolysis (Duncan). **Spongia Usta,** was formerly considered a sovereign remedy (Wa). **Seton,** has cured. **Fluoric Acid,** in doses of ♏xv to ʒj thrice daily, largely diluted, cured seventeen cases out of twenty (Woakes). **Excision,** is a very difficult operation, only to be considered in extreme cases; it has been performed successfully by Desault, Harris, Lane, Hedenus, Billroth and Greene. [Compare EXOPHTHALMOS.]

Prescriptions.

℞. Ammonii Chloridi, . . . ʒvss.
Syrupi Simplicis, ... ℥ss.
Aq. Cinnamomi, ... ℥iv.
M. Sig.—Teasp. thrice daily.

℞. Unguenti Hydrargyri Iodidi
Rubri, ... ʒj.
Vaselini, ... ʒvij.
M. Sig.—Use as directed. (*Gross.*)

Gonorrhœa.

Aconite, a drop of tinct. each hour in the acute stage (R); when inflammation (Pf, St). **Gelsemium,** serviceable, acute stage (Pf). **Cannabis Sativa,** after acute symptoms subside, a few drops 3 or 4 times a day, is fully as effectual as Copaiba or Sandal, and infinitely more pleasant to take (Pf). **Cannabis Indica,** relieves pain, diminishes discharge (P); occasionally useful (R). **Mercury,** excellent results from Corrosive Sublimate (Pf); gr. ¼–½ to ℥viij aquæ destill. in subacute and chronic stages, as injection thrice daily; may have gr. ss–j of Zinc Chloride added with benefit; is often effectual (Wa.) [See page 476 for formula.] **Hydrastis,** the infusion best for injection, ʒj of root to ℥viij aquæ (Pf); the fluid extract is one of the best injections, properly diluted; or the Muriate of Berberine (Hydrastin) ʒj to ℥iv of mucil. acaciæ (B). **Colchicum,** the wine of the seed has frequently cured gonorrhœa, and was used in thirty-minim doses nightly for the relief of chordee by Brodie (B). **Ferric Chloride,** when acute stage has passed and the discharge is degenerating into gleet, few remedies are more useful than this tincture, in doses of ♏xv–xx thrice daily (Wa). [See ERYSIPELAS for formula.] **Alkalies,** Citrates or Bicarbonates to render the urine alkaline (R); Lithium Carbonate in five-grain doses thrice daily, for the same purpose: Alkalies are the chief factor in Otis's treatment; Potassium Bicarb., gr. x in a tumbler of water, or in Flaxseed tea, or Infusion of Triticum, with gr. xv of Potass. Bromide, if great pain present; Vichy Water (Celestin's) freely (Otis.) **Turpentine,** in chronic stage, when parts are relaxed, moderate doses are of great benefit (B). **Cantharides,** drop-doses may be used (R); in the chronic stage (B). **Pulsatilla,** in subacute and gonorrhœal ophthalmia (P). **Copaiba,** especially adapted to gonorrhœa (B); pour it upon half a winegl. of water to which add some bitter tincture (Chapman); if given too early in the disease it will aggravate the symptoms (P); should not be used until pain in urinating is nearly gone, chordee ceased, and the discharge is diminishing and of yellow color (Wa); is no good, but rather injurious, and prolongs the disease (Otis). [See page 471 for formula.] **Sandalwood Oil,** valuable in subacute (P); a good quality difficult to obtain (Pf); the best internal remedy, Copaiba next (St). **Silver Nitrate,** a weak solution (gr. j–v to ℥j) as injection; in vaginal gonorrhœa a strong solution (ʒj to ℥j) through speculum to every part of the canal (B); as abortive injection is useless and dangerous (St). **Cubeb,** unlike Copaiba, is given with good effect in acute stage; best results from a mixture of both as in electuary [See formula below]; is not irritating to the stomach, and agrees with some patients better than Copaiba (Wa). **Zinc Salts,** a weak injection of the Chloride, gr. j to ℥vj or viij of Rose-water; or the Sulphate gr. j to the ℥, frequently repeated, is probably the best treatment (B); the best injections are those of the Sulphate or Acetate, gr. vj–xij to ℥iv aquæ, after the acute inflammation subsides (St). **Bismuth**, the oleate, smeared on a sound, and inserted for 5 minutes (Shoemaker); with mucilage as an injection, excellent in chronic gonorrhœa (Hill). **Lead Acetate**, the dilute solution of the Subacetate, as injection, may be employed at any stage (B). **Chloral**, a weak solution, gr. j–iv to the ℥, a very good injection (Hill). **Resorcin**, a 1 per cent. solution makes a useful injection (Wa). **Injections**, of Tannin, Copper Sulphate, Iron, Cadmium, Port-wine, Brandy-and-water, and 1000 other agents (R); injections are very bad, especially in the acute stage; should never be used until the 5th week and then only if the case is not progressing (Otis). True gonorrhœa is never cured in less than four weeks (Van Buren and Keyes); urethritis is a different disease entirely (Otis). **Balsams** of Peru and Tolu, also Buchu, Uva Ursi, Chimaphila, Pareira, etc., are among the numerous remedies used for gonorrhœa (R). **Alcohol**, as a beverage, or any other stimulant, must be avoided entirely (R). **Soluble Bougies** made of Iodoform, Eucalyptus and Cacao-butter, are highly recommended to cut the disease short (Wa); a series of similar preparations, having a basis of Gelatin and Glycerin, medicated with the usual astringent and sedative drugs, is manufactured by C. L. Mitchell, of Philadelphia, and may be obtained of the drug trade. **Wrappings** of several folds of cotton are heating and uncomfortable, also dirty and productive of balanitis, etc. Pin a false front to shirt for covering (St). **Rest**, in bed is an absolute desideratum, especially during the inflammatory stage. Hot water, 100° F., to the penis during urination, extreme cleanliness, milk diet; water freely as a beverage; flavored with a few drops of Oil of Gaultheria, or Flaxseed tea, or Infusion of Triticum with Potassium Bicarbonate. Sexual thoughts to be entirely avoided (Otis). [Compare CHORDEE, GLEET, ORCHITIS, RHEUMATISM GONORRHŒAL, URETHRITIS, URETHRAL STRICTURE, VAGINITIS.]

Prescriptions.

For Internal Use.

℞. Potassii Citratis, ... ℥ss–j.
Spt. Limonis, ... ʒss.
Syr. Simplicis, ... ℥ij.
Aquæ, ... ℥j.

M. Sig.—Dessertsp. largely diluted, 3 or 4 times daily. As alkali for the increasing stage. (*Otis.*)

The Black Paste.

℞. Pulv. Cubebæ, ... ℥iij.
Copaibæ, ... ℥jss.
Aluminis, ... ℥ij.
Sacchari Albi, ... ʒj.
Magnesiæ, ... ʒjss.
Olei Cubebæ, ... ʒj.
Olei Gaultheriæ, . . . ʒj.

M. fiat electuarium Sig.—A piece the size of a walnut after each meal. (*Otis.*)

℞. Oleoresinæ Cubebæ, . . . ʒiv.
Potassii Bromidi, ... ℥j.
Olei Sassafras, ... ♏x.
Syr. Acaciæ, ... ℥ij.
Aquæ, ... q. s. *ad* ℥vj.

M. Sig.—Dessertsp. 3 or 4 times daily. (*J. Wm. White.*)

[For Alkaline Emulsion of Copaiba see *ante*, page 471.]

For Local Use.

℞. Resorcini, ... ʒj.
Ac. Borici, ... gr. xx.
Zinci Acetatis, ... gr. ¼-½.
Aquæ Destil, ... ℥iv.

M. Sig.—Dessertsp. as injection.

℞. Pulv. Iodoformi, ... ʒss.
Ac. Carbolici, ... ʒij.
Glycerini, ... ℥ij.
Aquæ Destil., . . q. s. *ad* ℥viij.

M. Sig.—Teasp. as injection.

℞. Zinci Sulphatis, ... gr. vj.
Plumbi Acetatis, ... gr. viij.
Ammonii Chloridi, . . . gr. iv.
Aluminis, ... gr. v.
Aquæ Rosæ, ... ℥j.

M. Sig.—Injection to be used after acute symptoms subside.

℞. Zinci Sulphatis, ... gr. viij.
Liq. Plumbi Subacet. Dil., ℥iv.

M. Sig.—Use as an injection.

℞. Zinci Chloridi, ... gr. j.
Aquæ Rosæ, ... ℥vj–viij.

M. Sig.—Use as injection.

[For Injection Brou and others, see *ante* page 476.]

Gout.

Piperazin, the best solvent for uric acid; promptly reduces the redness and swelling of the joints in acute gout; remarkably relieves the paroxysm, and promotes elimination of uric acid and urates; should be given in doses of 15 grains daily, dissolved in a pint or more of carbonated water. **Phenocoll**, the Hydrochloride, when much pain and fever; combined with Piperazin, gr. xv of each daily in a pint or more of carbonated water, is very efficient treatment. **Morphine**, hypodermically, as close to the affected joint as possible outside of the red areola, is miraculous in giving immediate relief. **Antipyrin**, remarkably efficient for relieving the pain as well as prophylactic against future attacks (Marshall). **Aconite**, may certainly relieve pain (P). **Belladonna**, the best remedy to effectually and speedily soothe pain; also in gout of the stomach, 5-♏ doses efficacious (P). **Potassium Iodide**, especially when pain is worse at night (R). **Colchicum** is merely palliative; a large dose (ʒj) of the wine often removes the severest pain in an hour or two, and soon after the swelling and heat subside (R); it is especially useful in acute and rheumatic gout (B); is not specific, nor a lasting or final remedy for gout, but acts very directly on the pain and inflammation of acute attacks. Laville's tincture is a Colchicum preparation, though Colocynth is also a constituent (P); Colchicum is useful in the bronchitis, asthma, dyspepsia, urticaria, etc., of gouty subjects (R). **Veratrine**, as ointment to painful joints (R). **Sulphides**, as baths in chronic gout, or fumigation with Sulphurous Acid, and bed-clothes exposed to strong fumes (R); Sulphur waters certainly benefit (B). **Iodine**, painted round joints in chronic gout (R). **Strychnine**, hypodermically for later stage of gout paralysis (R). **Arsenic**, very serviceable in a form of chronic arthritis allied to neuralgia (B). **Lithium**, the Bromide internally and a strong solution of Lithia to the joints (B); the Bromide is the most efficient agent in combating the disease (Aulde); the Carbonate (gr. v to the ℥) on lint around gouty enlargements, joints, etc. (R). **Sodium Salicylate**, gr. x internally every 2 hours, also ʒij to ℥vij of warm water, as lotion on lint covered with oiled silk. **Guaiacum**, has long had high repute, and may be given for a long time without injury (Wa). **Rhubarb** with an alkali, regularly during intervals, very serviceable (Halford). **Manganese**, Syrup. Ferri et Mang. Iodidi (♏x–ʒss) for the cachectic state (B). **Alkalies**, to relieve indigestion, especially Lithium Salts; Alkaline mineral waters have long had a deserved reputation (B); Magnesia and its Carbonates often of great service; the latter dissolved in excess of CO_2 an elegant form of administration (Wa). **Alkaline Poultice**, 9 of Linseed meal to one of Sodium Bicarb. is a useful application (R). **Turkish Baths**, are useful in chronic gout (R). **Aliment.** Farinaceous vegetables and acid fruits; avoid animal or saccharine food. Milk-cure has improved cases, and apparently removed the diathesis (B). Cod-liver oil in chronic gout (B, R). Entire abstinence from alcoholic beverages is best; the worst wines are port, sherry and maderia. **Local Measures.** The affected limb should be raised, and surrounded by hot, moist flannels; wrap the hands in flannel dripping with water, and cover with waterproof bag, to dissolve gouty deposits. [Compare ARTHRITIS, LITHÆMIA.]

Prescriptions.

Scudamore's Mixture (*Modified*).

℞. Vini Colchici Radicis, . . ℥j.
Magnesii Sulphatis, . . . ʒj.
Magnesiæ Optimæ, . . . ʒij.
Aquæ Menth. Pip., . . . ℥x.
M. Sig.—Tablesp. every hour until it operates on the bowels.

℞. Colchicinæ, ... gr. j.
Ext. Colocynthidis Co., . . ʒss.
Quininæ Sulphat., . . . ʒiij.
Ft. pil. no. lx. Sig.—One every four hours. (B.)

℞. Vini Colchici Sem., . . . ℥ss.
Tinct. Digitalis, ... ʒij.
Liq. Potassii Citratis, . . ℥ijss.
M. Sig.—A teasp. in water every six hours.

Lallemand's Specific.

℞. Ext. Colchici Acet. (B. P.),
Ext. Opii Aquosi, . . āā gr. xv.
Potass. Iodidi, ... ʒiv.
Potass. Acetatis, ... ʒij.
Aquæ Destill., ... ℥iijss.
Vini Albi, ... ℥ss.
M. Sig.—20 drops thrice daily.

℞. Lithii Citratis,
Magnesii Carbonat., . āā ℥j.
M. et div. in pulv. no. l. (50).
Sig.—One in water thrice daily. In chronic gout.

℞. Lithii Bromidi, ... ℥j.
Liq. Potas. Citrat., . . . ℥iv.
Syr. Tolutan., ... ℥ij.
M. Sig.—A teasp. in plenty of water after each meal. (*Aulde.*)

Gums.

Myrrh, the tincture for spongy and ulcerated gums (P); ʒij–iv in ℥iv of water or Infusion of Cinchona, is highly serviceable as a gargle or mouth-wash (Wa). **Alum**, for spongy and ill-conditioned gums, tending to recede from the teeth, whether of mercurial or scorbutic origin (Wa). **Catechu**, a piece dissolved slowly in the mouth is often of service in similar conditions (Wa). **Rhatany**, the powder as a dentifrice, keeps gums in good order (P). **Potassium Chlorate**, gr. ij every four hours for a child of one year, for inflammation of gums in teething (Wa). **Carbolic Acid**, gr. iij ad ℥j aquæ, as lotion in diseases of the gums (Hilditch). **Pomegranate**, the bark an excellent basis for gargles in relaxed gums (P). **Potassium Iodide**, gr. x thrice daily, for periostitis of alveolar processes, marked by looseness of teeth, pain and swelling of gums (Graves). **Iodine**, gr. j ad ℥j aquæ, applied by a camel's-hair brush, after each meal, for retraction of gums with loosening of the teeth (Stillé). **Tannin**, the glycerite, for spongy and bleeding gums (B). **Carbolate of Iodine**, when fetor, (B). **Benzoin**, the tincture a good application (B). [Compare SCURVY, TEETH.]

Prescriptions.

℞. Aluminis, ... ʒss.
Tinct. Myrrhæ, ... ʒj.
Tinct. Cinchonæ, ... ℥iv.
Mel. Rosæ, ... ℥j.
Vini Albi, ... ℥viij.
M. Sig.—Mouth-wash.

℞. Tinct. Orris,
Spt. Rosæ,
Alcoholis, ... āā ℥iv.
Ol. Amygd. Amar., ... gtt. ij.
M. Sig.—Violet Mouth-wash.
(*Piesse.*)

Hair.

Rosemary, encourages the growth of hair, mitigates baldness, and is supposed to prevent uncurling in a damp atmosphere (P). **Hydrogen Dioxide**, and other preparations of oxygen, are used to "blonde" the hair, for purposes of fashion (Wilson). **Hair-dyes**, comprise Potassium Permanganate, Pyrogallic Acid, Black Oxide of Lead, which are temporary, and the Black Oxide of Silver, which is permanent in its action (Wilson). **Depilatories** usually consist of powders containing Quicklime 3 parts, Sodium Sulphide 1, and Starch 4. A powerful depilatory is Barium Sulphide made into a thin paste with Starch (Wilson). Another contains Yellow Sulphide of Arsenic, gr. xx, Quicklime, ℥ss, Starch, ʒij. A very effective one is Barium Sulphide and Zinc Oxide (B). **Sarsaparilla** is stated by Teste to possess the curious property of changing red hair to a light flaxen color, when taken internally for three months. [Compare ALOPECIA, SYPHILIS, TINEA TONSURANS, ETC.]

Prescriptions.

℞. Sodii Boratis, ... ʒiv.
Aq. Ammoniæ, ... ℥j.
Spt. Myrciæ, ... ℥ij.
Aq. Rosæ, ... ℥xiij.
M. Sig.—Shampoo Hair Wash.

℞. Ac. Salicylici, ... gr. xl.
Tinct. Benzoini, ... ʒss.
Alcoholis, Glycerini, . . āā ℥viij.
M. Sig.—Hair Wash.

℞. Ol. Ricini, ... ℥jss.
Ol. Bergamottæ, ... ʒjss.
Ol. Cinnamomi,
Ol. Caryophylli, ... āā ♏vij.
Ol. Lavandulæ, ... ♏xl.
Tinct. Cantharidis, ... ʒj.
Aq. Ammoniæ, ... ʒij.
Alcoholis, ... q.s. *ad* Oj.
M. Sig.—Hair Tonic.

Hay-Fever.

Arsenic, especially valuable when disease is more of catarrhal than of asthmatic type, 3-minim doses of Liquor Arsenicalis (Makenzie); as cigarettes, 2 or 3 daily. [See ASTHMA for formula.] **Belladonna**, when nasal secretion is very profuse (B). **Euphrasia**, of decided benefit for the catarrhal symptoms (Pf). **Quinine**, very useful after the more acute symptoms have subsided (R); injected into the nares checks catarrhal discharge and spasmodic symptoms (P); a solution of the Hydrochlorate, gr. iv–viij ad ℥j aquæ, applied locally to nasal mucous membrane by a spray-producer or a brush, will arrest the disease if confined to the nares and fauces (B). **Ipecacuanha**, in hay-asthma (R); is of great value, though the smallest doses cause similar effects (P). **Aconite** is better than Arsenic in true hay-fever (R); has been used with the best results (P). **Grindelia** benefits cases of asthmatic type (B). **Iodides** are very serviceable, locally and internally; large doses until some iodism observed; may be combined with Arsenic (B). **Opium**, especially as Morphine, of great value in any stage, but great danger of the opium-habit (B); the tincture in doses of ♏ij–iij every 2 hours for three doses, then ♏j every 2 hours until the discharge abates, has given excellent results (Wa). **Black Coffee** is highly recommended (P). **Cocaine**, a 5 to 20 per cent. solution of the Hydrochlorate, brushed over the nasal mucous membrane after drying it as far as possible, is the most efficient palliative yet obtained (R); a 4 per cent. solution dropped from a medicine-dropper well into anterior nares, the head being thrown well backward, or sprayed up the nostrils from a small atomizer; gives immediate relief, and though not curative it prevents so much suffering and distress that in no case should it be left untried (DaC). **Ignatia**, the tincture has seemed to benefit some cases, and to favorably influence the course of the disorder (Da C). **Lobelia**, has been found an efficient remedy (Wa). **Tobacco**, smoking helps some and aggravates the symptoms in other instances; internally ad nauseam it helps, but there are better and safer remedies (Wa). **Removal** to the sea-coast, or a barren, mountainous district, gives the only relief to some subjects; though many of the worst cases, hitherto unaffected by medicine, are now relieved by the local application of Cocaine. [Compare ASTHMA, CATARRH, CONJUNCTIVITIS, INFLUENZA.]

Prescriptions.

For Internal Use.

℞. Potassii Iodidi, ... ℥j.
Liq. Potass. Arsenit., . . ʒj.
Aquæ Cinnam., ... ℥iv.
M. Sig.—Teasp. every 4 hours.

℞. Ext. Hyoscyami, ... gr. xij.
Potassii Iodidi, ... ʒj.
Potassii Bicarb., ... ʒij.
Ext. Glycyrrhizæ Pur., . . ʒiv.
Aq. Anisi, ... ℥ivss.
M. Sig.—Dessertsp. every 4 hours until relieved. (*Weber.*)

℞. Liq. Potassii Arsenit., . . ℥j.
Tinct. Belladonnæ, ... ʒij.
M. Sig.—5 to 10 drops after meals, as a prophylactic.

℞. Tinct. Euphrasiæ, ... ʒjss.
Aq. Camphoræ, . q. s. *ad* ℥ij.
M. Sig.—Teasp. four times daily, for the catarrh.

For Local Use.

℞. Tinct. Iodi, ... ʒj.
Ac. Carbol., ... gtt. x.
Aq. Destill., ... ℥iv.
M. Sig.—For local use with atomizer or post-nasal syringe.

℞. Mentholi, ... ʒj.
Ac. Carbol., ... ʒss.
Zinci Oxidi, ... ʒj.
Ol. Amygd. Dulcis, ... ℥jss.
Cerati Simplicis, ... ʒij.
M. Sig.—Apply thoroughly to the nostrils every few hours.

℞. Quininæ Bisulph., ... ʒiij.
Aquæ, ... ℥iv.
M. Sig.—Irrigate the nares, after cleansing with a weak alkaline solution.

℞. Cocainæ Hydrochlor., . . . gr. vj.
Aquæ Destill, ... ʒij.
M. Sig.—5 per cent. solution. A few drops to be instilled into nares while head is lowered. (*Da Costa.*)

Headache, Bilious-sick.

Salol, is one of the most efficient remedies. **Antipyrin**, the most valuable single remedy for headaches; an 8-grain dose in dyspeptic headache, in a little water, at commencement of attack, the patient lying down in a dark room; a second dose one hour after is generally enough, but a third or fourth may be required: sleep generally follows, and there are no unpleasant after-effects. **Acetanilid**, in 4-gr. dose, equally effective. **Nux Vomica**, gtt. j of tinct. frequently, when acute gastric catarrh, with headache and nausea (R); gtt. j every 10 minutes, soon after meals, often gives marked relief in sick-headache not of neurotic origin (Smith). **Strychnine**, with Aloin and Belladonna, in minute granules, for bilious headache from obstinate constipation, effective if given several times a day for a week or ten days (Roy). **Belladonna**, the extract in doses of gr. $\frac{1}{20}$–$\frac{1}{10}$, in similar form. **Iris**, blinding headache in right supraorbital region, with nausea and vomiting, usually the result of hepatic derangement; ♏j every half-hour for three doses, usually relieves promptly (Pf). **Bryonia**, ordinary bilious sick headache with vomiting (P). **Picrotoxin**, gr. $\frac{1}{20}$ by stomach, in periodical form (B). **Chamomile**, a popular remedy (R). **Podophyllum**, in sick headache, with dark bilious diarrhœa, or when constipation with dark evacuations (R). **Sanguinaria**, when due to stomach derangement, a few doses relieve (P). **Hydrastis**, from constipated bowels (P). **Mercury**, as Blue Pill, to prevent or mitigate; or small doses (gr. $\frac{1}{100}$) of Bichloride when with light-colored diarrhœa (R). **Ammonium Chloride** is an efficient remedy in most forms of headache (Wa). **Sodium Phosphate**, a useful laxative in so-called bilious-sick headache (B). **Potassium Bromide**, a large dose in ordinary or sick-headaches (R). **Ginger**, in paste, as counter-irritant (P). **Water**, as cold or hot affusion, or ice-bag to head; hot sometimes best; the purgative waters (as Friedrichshall) before breakfast in a cup of hot water (R); a brisk saline purgative, or small doses of Epsom salts thrice daily, very effectual for frontal headache with constipation (Br). **Nitro-muriatic Acid**, 10 drops of the dilute acid in a winegl. of water, before each meal, often an effectual remedy (Br). **Charcoal**, two teaspoonfuls stirred in half-glass of water, as a draught, is an efficient remedy for sick-headache with sour stomach and flatulence, etc. [Compare HEMICRANIA.]

Prescriptions.

℞.	Ammonii Chloridi, ...	ʒiij.
	Morphinæ Acetatis, . . .	gr. j.
	Caffeinæ Citratis, ...	ʒss.
	Spt. Ammonii Aromat., . .	℥j.
	Elix. Guaranæ, ...	℥iv.
	Aquæ Rosæ, ...	℥iv.

M. Sig.—Dessertsp. every quarter-hour until relieved. (*Carpenter*.)

℞.	Podophylli Resinæ, . . .	gr. ij.
	Tinct. Zingiberis, ...	ʒij.
	Alcoholis, ... q. s. *ad*	℥j.

M. Sig.—Teasp. in a winegl. of water every night at bed-time, or every second, third or fourth night as required. (*Dobell.*)

Headache, Congestive.

Aconite, to reduce the circulation (R). **Veratrum Viride**, at menstrual periods (R). **Belladonna**, relieves cerebral congestion, and distress from light and sound (P); pain over brows and in eyeballs, often due to stomach or uterine derangements, especially in young women; ♏iij of tinct. every three hours (R). **Potassium Bromide**, a large dose (gr. xv–xx) in ordinary or sick-headaches (R); Bromides are useful when nervous system has been irritated, but when exhausted they do harm (Hammond). **Calomel**, gr. $\frac{1}{80}$, every hour for ten or twelve doses, will relieve the headache of syphilis occurring at night (Tr). **Cannabis Indica** is given with uniformly good results in the headache of the climacteric. **Potassium Iodide**, throbbing, intolerance of light, pain passing from back of neck over vertex to brow, nocturnal, tender scalp, almost unbearable; ten-grain doses ter die will cure (R). **Hydrastis**, when constipated bowels (P). **Amyl Nitrite**, for headaches with severe flushing heats at menstruation or climacteric, ♏$\frac{1}{30}$ a sufficient dose (R). **Mustard**, in hot foot-bath, or as poultice to nape of neck in various forms of headache (R). **Water**, cold water poured gently over forehead, sometimes warm water better (R); a very hot foot-bath often effectually relieves (Wa). **Purgatives** are often beneficial, especially when congestive headache arises from suppression of hemorrhoidal discharge, or in persons of phlegmatic habit; Aloes best (Wa); or Colocynth, as derivative, when cerebral hyperæmia (Da C).

Prescriptions.

℞. Ext. Colocynthidis Co., . . gr. xij.
Pulv. Capsici, ... gr. iv.
Ext. Gentianæ, ... gr. xxiv.

Ft. pil. no. xij. Sig.—One pill thrice daily; also a 25-gr. dose of Sodium Bromide nightly, at bedtime. (*Da Costa.*)

℞. Spt. Ammoniæ, ... ℥j.
Spt. Camphoræ, ... ʒss.

M. Sig.—For a quart of water, in which a handful of common salt has been dissolved. Cork tightly and use locally on lint as an evaporating lotion.

Headache, Nervous.

Cannabis Indica, ten-minim doses of the tincture thrice daily in the intervals, often curative in bad cases of neuralgic headache; or ¼ to ½-grain doses of the extract (P). [See under HEMICRANIA.] **Belladonna**, ♏iij of tinct. every 3 hours, when pain over brows and in eyeballs, especially when at menstrual periods; also when from over-study or fatigue (R). **Nux Vomica**, if with gastric symptoms (R); is better than Strychnine, and should be given in quarter-grain doses of the extract after meals, combined with Iron and Quinine if patient is chlorotic (Hammond). **Bromides**, when the nervous system has been irritated are useful, but harmful when it is exhausted (Hammond). **Silver Nitrate**, half-grain doses with minute doses of Pil. Coloc. Comp., invaluable in headaches of hysterical women and especially stomach headaches of delicate and literary men (Wa). **Ignatia**, removes clavus hystericus (Pf). **Ammonia**, the Aromatic Spirit (ʒss–ʒij) or the Carbonate (gr. v–x) in nervous headache (B); the Hydrochlorate (gr. x–xx) in bilious and hysterical headaches, especially in hard-worked and delicate young women (Wa). **Amyl Nitrite**, inhaled, when extreme pallor of face (B). **Arsenic**, throbbing supra-orbital (R); as a nerve tonic stands next in value to Zinc (Hammond). **Cimicifuga**, in nervous or hysterical women, especially at menstrual periods (R); in rheumatic headaches and menstrual (P). **Coffee** and **Tea**, when from nervousness or exhaustion (R); Coffee especially useful (P). **Guarana**, a very effective palliative, gr. xx every half-hour for three doses (P); ♏xv of the fluid extract every quarter-hour increased to ♏xl will often relieve periodical headaches not of malarial origin (Smith). **Sodium Salicylate**, in small doses, gr. ij–iij every quarter-hour, is very efficient in neuralgic headache (Br). **Caffeine Citrate**, one to two-grain doses, in capsule, every half-hour, a very effectual remedy for nervous and sick-headache, but causes insomnia if used in the evening. **Phosphorus**, as dilute Phosphoric Acid, in doses of ♏xxx well diluted, thrice daily; or Zinc Phosphide, gr. $\frac{1}{10}$ in pill, ter die, very useful in most forms of nervous headache (Hammond). **Cajuput Oil**, well rubbed in twice daily (P). **Menthol**, locally to forehead in frontal headache (Wa). **Potassium Cyanide**, locally in reflex headaches, as gastric, cardiac, pulmonary, menstrual (B). **Valerian** is of great value in excitable persons (P). **Camphor**, a saturated solution in Eau-de-Cologne rubbed on head, when of uterine origin (R); in hysterical females, internally, with Magnesium Carbonate (P). **Podophyllum**, purgative doses often give relief when near menstrual periods, with constipation and dark stools (R). **Zinc Oxide**, two- to five-gr. doses useful (R); a remedy of great value (Hammond). **Bismuth**, the Subcarbonate, in two-grain doses after each meal, often better than Zinc, especially where gastric disturbance (Hammond). **Ether Spray**, for frontal headache, after acute illness or fatigue (R). **Chloroform**, ♏xv–xxx of the spirit internally, often effective (Wa). **Galvanism**, sometimes valuable; the constant current always, avoiding too great intensity lest amaurosis ensue (Hammond). [Compare HEMICRANIA, NEURALGIA.]

Prescriptions.

℞. Potassii Cyanidi, ... gr. x–xx.
Aquæ Laurocerasi, ... ℥iv.
M. Sig.—Apply locally on a compress for ¼ to ½ an hour. (B.)

℞. Zinci Phosphidi, ... gr. iij.
Ext. Nucis Vom., ... gr. x.
Confect. Rosæ, ... q. s.
M. et div. in pil. no xxx.
Sig.—One pill after each meal.
(*Fordyce Barker.*)

℞. Extracti Nucis Vom., . . . gr. iij.
Ferri Reducti, ... gr. xij.
Quininæ Sulphatis, ... gr. vj.
Ft. pil no. xij. Sig.—One after each meal. (*Hammond.*)

℞. Ext. Cann. Ind. Fl., . . . ℥ss.
Pulv. Acaciæ, ... ʒv.
Syr. Aurantii Cort., . . . ℥ij.
Aquæ, ... q. s. *ad* ℥vj.
M. Sig.—Teasp. every 3 hours.

Heart Affections.

Strychnine, in medicinal doses, is said to strengthen the heart-beats (R). **Nux Vomica**, gave speedy relief in several cases of heart-failure in which death was imminent; small doses every ½ hour for four successive doses, then every hour (Bowie); in a case of cardiac hypertrophy and mitral insufficiency, in which death was imminent from heart-failure, one drop of the tincture in a teasp. of water every 5 minutes for 10 doses, then every 10 minutes for 3 doses, continuing at longer intervals, completely restored the cardiac force, and dispelled the accompanying cardiac asthma (Macfarlan). **Digitalis**, acts as a stimulant tonic (P); small doses of sedative action; tonic or physiological doses to create hypertrophy in dilatation (Tr).; irregularity of pulse is best indication (R); irritable heart (Da C); the tincture, given without water, is the best preparation; especially indicated in weak heart acting rapidly because of its weakness, and in valvular disease (Wa). **Convallaria Majalis**, will usually succeed in all cases in which Digitalis is useful, acting similarly to that drug, but with less reliability; is useful in aortic disease and in others where Digitalis cannot be used (Wa); valuable in all forms of heart disease where there is œdema of tissues (Sée). **Morphine**, next to Digitalis, is in general the most indispensable remedy in the treatment of severe heart disease, being by far the most efficient agent for the dyspnœa (Strümpell); hypodermically, is employed in many cardiac disorders with marked advantage, especially in dyspnœa and angina with diseased coronary arteries; mitral regurgitation, with its dyspnœa and insomnia; aortic disease, etc. **Cimicifuga**, safer than Digitalis in fatty heart (B); its action is strongly stimulating and tonic; it relieves excessive dyspnœa when weak heart (P). **Caffeine**, an excellent cardiac stimulant, and diuretic, gr. ij–v of the Citrate every three hours (Da C). **Arsenic**, for dyspnœa from weak heart (R); in all cardiac neuroses it is especially valuable when combined with Iron and Strychnine, and is regarded as indispensable in all forms of weak heart accompanied by pain (Wa). **Aconite**, in the highest degree serviceable to diminish excitement or irritability; it is more a remedy for functional derangement than for organic disease (Wa); in pericarditis (R); in nervous palpitations and hypertrophy (P); the heart seldom affected in rheumatic fever if Aconite be used from the start (P). **Veratrum Viride**, as cardiac depressant (B); in chronic cardiac diseases where excessive hypertrophy, *i.e.*, when Digitalis is contraindicated (W). **Iron**, useful in various forms, especially anæmic disorders and palpitation; also in dilatation and fatty heart, and mitral regurgitation (B). **Hyoscyamus**, in functional derangement from emotion, is specially indicated; requires large doses (♏xl–lx), or gr. $\frac{1}{48}$ of Hyoscyaminæ Sulph. hypodermically (Wa). **Amyl Nitrite** relieves heart-pains resisting all other treatment (W). **Potassium Iodide**, the true remedy for the heart; especially applicable in non-compensatory mitral or myocardial diseases, and where there is cardiac debility; restoring energy and vascular tension at first; then by dilating, later on, all the arterioles, it frees the heart from resistance, and enables it to recover its contractile power; also dilating the coronary arteries it furnishes nutrition to the heart itself (Sée). **Blisters**, flying, over præcordial region, to stimulate action in extreme weakness (R). **Alcohol**, as Brandy when heart suddenly enfeebled by fright, loss of blood, etc. (R). **Ether**, ♏xx hypodermically, repeated soon, is a very promptly-acting stimulant in sudden heart-failure; the compound spirit in ʒj doses for less urgent cases. [Compare ANGINA PECTORIS, DROPSY, ENDOCARDITIS, PERICARDITIS, SYNCOPE, and the five following articles.]

Prescriptions.

℞. Ext. Ergotæ Fl., ... ℥iijss.
Tinct. Digitalis, ... ℥ss.
M. Sig.—Teasp. thrice daily in enlarged heart without valvular lesion.

℞. Spt. Ætheris Comp.,
Liq. Morphinæ Sulph.
(U. S. P., 1870), āā ℥j.
M. Sig.—Teasp. as required for the dyspnœa.

Heart, Dilated.

Digitalis, where much dilatation, and hypertrophy of left ventricle without valvular disease; is not contraindicated when aortic disease (R); use in physiological doses (Tr); in simple dilatation gives most favorable results (W); very useful in mitral disease, with dilatation of the left ventricle (P); gives miraculous relief, is not sufficiently appreciated, but requires skilful administration; use the infusion in preference to other preparations, a tablespoonful thrice daily, watching its effects (Da C). **Scoparius**, the infusion (Broom-tea), to maintain the kidney action if Digitalis is not sufficient (Da C). **Purgation**, brisk, free, watery stools, next to Digitalis are the best treatment (Da C). **Morphine**, hypoderm. gr. ⅛–⅙ two or three times a week in dilated heart with dyspnœa (B). **Amyl Nitrite**, dyspnœa from dilatation (R); is useful when great dyspnœa (cardiac asthma) (P). **Ether**, the Compound Spirit an excellent remedy for the dyspnœa (Da C). **Mercury**, a classical pill and a very efficient one as a diuretic in dropsy from cardiac disease is the combination of gr. j each of Pulv. Digitalis, Pulv. Scillæ and Hydrarg. cum Cretâ (Foster).

Heart, Fatty.

Iron, the Tinct. Ferri Chloridi in small doses for a long time, has been of remarkable benefit (Wa). **Cimicifuga**, safer than Digitalis (B); the latter should not be used (Wa): Digitalis of no value except for very temporary use and for some special indication (Da C). **Strychnine**, often the first remedy to do good; unduly pushed will produce nervous worry and be injurious (P); is the remedy with Iron, nourishing but not fat-making diet, and wine to keep up the tone of the blood (Da C). **Ergot**, occasional doses have been given with apparent benefit (Wa). **Ether**, the Compound Spirit for sudden attacks of pain or dyspnœa (Da C). **Amyl Nitrite**, for the same, but Chloral must be entirely debarred (Da C). **Stimulants**, freely, in an acute attack of any kind, afford the only chance (Da C).

Heart, Hypertrophied.

Aconite, often better than Digitalis (R); dangerous in hypertrophy of left side, with diseased valves, but useful in simple hypertrophy (P); for overaction, with hypertrophy (B): the one remedy which can be depended on; small doses for months, say gtt. j of a good tincture ter die, to lower the heart gradually and keep it low (Da C). **Digitalis**, very useful in pure hypertrophy due to valvular disease or excessive muscular exertion (R): the primary action (small doses) required, as it creates hypertrophy when given in physiological or tonic doses (Tr). **Veratrum Viride**, as a cardiac depressant (gtt. v ter die) will relieve in simple hypertrophy, and irritable heart from abuse of tobacco, inadmissible when valvular lesions exist (B); gives the best results, next after Aconite (Da C). **Lead Acetate**, for violent palpitations, in some instances (Wa). **Amyl Nitrite**, in dyspnœa, syncope (R). **Ergot**, in enlarged heart without valvular lesion; may be combined with Digitalis (B). **Potassium Iodide**, small doses long continued, benefit some cases (Wa). **Camphor**, in doses of gr. iij–xij daily for tumultuous palpitations, and dyspnœa of hypertrophy with dilatation (Wa). **Iron** is necessary where anæmia exists (Da C). **Quiet Life** of great importance, no stair-climbing, no long walks; rest in bed often of service for days at a time, moderate diet, avoiding fattening foods, meat, and stimulants (Da C).

Heart, Palpitation of.

Aconite, for "fluttering" of nervous persons, and nervous palpitations (R); for over-action, with hypertrophy (B); for palpitation with simple hypertrophy (P). **Hydrocyanic Acid**, when from dyspepsia (P). **Iron**, when due to anæmia, a very frequent cause. Other causes are tobacco, coffee, tea, etc., to excess, dyspepsia, venery, excessive exercise (Da C). **Spigelia Anthelmia**, when due to mitral and aortic disease, with much dyspnœa (P). **Digitalis**, in small doses as sedative (Tr); combined with Iron in palpitations with valvular disease, or alone in very severe cases (Wa); suits a large number of cases, especially for temporary purposes (Da C); the only remedy of positive service for the actual palpitation (Richardson). **Camphor**, recommended in nervous palpitations (R). **Veratrine**, as ointment to chest, when rapid, irregular pulse, hurried breathing, dropsy and lividity, palpitation, inability to lie down (R). **Nux Vomica**, of great value in nervous palpitation. **Bromides**, in "fluttering" heart (B); are useful when tolerated by the stomach (Da C). **Hyoscyamus**, in nervous, and violent palpitations from excited state of the brain (P); in large doses, for functional disturbance arising from emotion (Wa). **Belladonna**, in small doses, may also be applied externally, when irregularity of rhythm (Da C). **Valerian**, nervous palpitation, with dyspnœa (P). **Eucalyptus**, palpitation and weak heart (B). **Galvanization**, of cervical sympathetic and pneumogastric, for palpitation (B). **Hot Foot-bath** relieves palpitations (R). **Milk-cure**, has been beneficial in irregular action (B). **Ice**, to the cardiac region, has benefited many cases; is of chief value when patient can be kept in bed, which sometimes becomes necessary (Da C).

Prescriptions.

℞. Pulv. Digitalis, ... gr. xx.
Pulv. Colchici Sem., . . . gr. xl.
Sodii Bicarb., ... gr. lx.

M. et div. in chart. no. xl. Sig.—One powder at first 3 or 4 times daily, gradually reduced to one at bedtime. For irregular cardiac action. (*Bowditch.*)

℞. Tinct. Digitalis, ... ʒij.
Spt. Etheris Nitrosi, . . . ℥j.
Liq. Ammonii Acet., . . *ad* ℥iv.

M. Sig.—A dessertsp. every 4 hours. If prolonged insomnia with palpitation add of Morph. Sulph. gr. $\frac{1}{16}$ to each dose. (*Richardson.*)

Heart, Valvular Disease.

Nux Vomica, the tincture in one-drop doses every 5 minutes, remarkably efficient in heart-failure, even with death impending (Bowie); also for the asthma (Macfarlan). [See under HEART AFFECTIONS, *ante.*] **Digitalis**, in aortic regurgitation (R); most effective in mitral insufficiency (P); in rapid action with low arterial tension; and in mitral disease: Infusion best, tablesp. doses twice daily (B); ♏j of tinct. every ½ hour or hour, often gives more relief than larger doses (Smith); when heart is weak and struggling (Da C).

Morphine, hypodermically for dyspnœa, better in mitral than in aortic disease (R); the agent above all others in aortic insufficiency, combating the two great symptoms therein, the cerebral anæmia and the dyspnœa; is to aortic regurgitation what Digitalis is to mitral (Dujardin-Beaumetz). **Aconite**, useful for the palpitation, but dangerous in hypertrophy of left side with diseased valves (P); for cases presenting excessive growth and strong action, diminishes the blood-pressure in the arterial system, and gives great relief (Da C). **Veratrum Viride**, has similar applicability, but is more apt to nauseate. An admirable sedative, and one which does not sicken is a mixture of Tinct. Aconiti, ♏j, Tinct. Verat. Vir., ♏iij, Tinct. Zingib., ♏vij (Da C). **Strophanthus**, is a cardiac tonic like Digitalis, but does not contract the vessels nearly as much (Br). **Nitroglycerin**, is the best of all remedies when actual cardiac pain; it lessens blood-pressure and diminishes the resistance the heart has to overcome (Da C). **Caffeine**, as a tonic and diuretic, of especial value in cases where urine is scanty, with cardiac pains, headache and dyspnœa, and weak heart; gr. ij of the Citrate every three hours (Da C). **Adonidine**, in doses of gr. $\frac{1}{10}$ to $\frac{1}{5}$ thrice daily, acts excellently as a cardiac regulator (Da C). **Barium Chloride**, gr. $\frac{1}{10}$ in pill three or four times daily, is diuretic, lessens cardiac pain, increases tone in the vessels, and is a good general and cardiac tonic (Da C). **Purging**, with Jalap, etc., in engorgement of right side of heart (R); occasionally useful (Da C). **Treatment** is directed chiefly to the dilatation or hypertrophy resulting from the valvular disease; the simplest rule is to use judgment as to when the heart needs strengthening by Digitalis or reducing by Aconite or Veratrum Viride (Da C). [Compare ENDOCARDITIS.]

Hectic Fever.

Quinine, large doses, gr. xv–xx daily, if stomach and intestines don't rebel (P); given before the paroxysm, to limit it (Roberts). **Antipyrin**, is better than Quinine, but must be used in much smaller dosage than ordinarily employed, say gr. iv or v about ½ hour before fever rises, then doses of gr. ij hourly as long as temp. remains above 100.5°. This daily, will give excellent results in the hectic of phthisis (Pibram). **Phenacetin**, is safer and equally efficient. **Phenocoll**, as an antipyretic, is used with marked success. **Aconite**, in small doses, a remedy of much value in the irritative fever of phthisis (Da C). **Morphine** and other anodynes, are of especial value, given in full doses toward bed-time (Gross). **Prunus Virginiana**, the bark has been found useful, especially when irritable cough (P). **Calcium Phosphate**, is especially useful (R). **Calumba**, excellent for tonic effects (P). **Digitalis**, the tincture, combined with Tinct. Ferri Chloridi, abates the temperature and diminishes the sweats (B). **Iron**, the Mistura Ferri Composita has obtained great celebrity, especially when much debility and anæmia (Wa); the Sulphate and Tincture of the Chloride of especial value in the treatment of hectic (Gross). **Ipecacuanha**, a few grains of Dover's powder at bed-time, will stop the profuse perspirations (Wa). **Salicin**, for profuse perspirations (Wa); as antipyretic. [Compare PERSPIRATION, PHTHISIS.]

Prescriptions.

℞. Tinct. Digitalis, ... ʒ iij.
Tinct. Ferri Chlor., . . . ʒ v.
M. Sig.—15 drops 3 or 4 times a day.
(B.)

℞. Quininæ Sulph., ... ʒjss.
Elix. Taraxaci, ... ℥iv.
M. Sig.—Teaspoonful every hour for six hours.

Hematemesis.

Ipecacuanha, is decidedly effective in small doses, also when hematemesis is vicarious of menstruation (P, Wa). **Hamamelis**, ♏j–ij of tinct. every 2 or 3 hours (R); effective from its Tannin (B). **Alum**, serviceable in passive hemorrhage; Iron better (B). **Turpentine**, especially in passive hemorrhage with debility (R); and in hemorrhagic transudations on the free mucous surfaces, hematemesis, etc. (B). **Ergot**, has often cured when other means failed (P); most valuable; in urgent cases Ergotin in 2- to 5-gr. doses hypodermically (R). **Iron**, the Subsulphate (Monsel's solution) or Pernitrate, the best remedies; gtt. j–ij frequently, diluted with ice-water (B). **Lead Acetate**, especially in gastric ulcer, gr. ss–v (B). **Tannic Acid**, gr. x–xx, when from gastric ulcer or obstructive disease of liver (B). **Gallic Acid**, an extremely useful agent; is best used in combination with dilute Sulphuric Acid (Wa). **Ice**, small pieces swallowed, a most useful agent, with perfect rest for stomach; when hematemesis from that organ, nutrient enemata must be employed; iced champagne to arrest faintness, if persistent; when moderate need not give cause for alarm.

Prescriptions.

℞. Olei Terebinth., ... ʒiij.
Ext. Digitalis Fluid., . . ʒj.
Mucil. Acaciæ, ... ℥ss.
Aq. Menth. Pip., ... ℥j.
M. Sig.—Teasp. every 3 hours.

℞. Ac. Gallici, ... ʒj.
Ext. Ergotæ Aquosi,
Digitalis, ... āā gr. xx.
M. et div. in pil. no. xx. Sig.—One every 4 hours.

Hematocele, Pelvic.

Opium, or Morphine, if needed for pain, with absolute rest in bed, and a moderately tight abdominal bandage (E). **Hemostatics**, as Gallic Acid, Lead, Turpentine, etc., to arrest the hemorrhage, if it be still going on, combined with opiates, and the use of ice-bags or cold lotions to the abdomen or per vaginam. **Tonics**, as Iron and Quinine, while resolution of the extravasation is going on. **Bromides** and **Iodides**, to quiet the action of the ovaries, if the hemorrhage recurs at different periods. **Potassium Iodide**, as an absorbent, may be given with Quinine (Braxton Hicks). **Iodized Cotton**, an excellent application to the cervix uteri in cases of hematocele (Wa). **Leeches**, should be applied early in cases of peri-uterine hematocele; later, except to check inflammation, they are inadmissible (Wa). **Mercury**, gr. $\frac{1}{20}$ of the Bichloride thrice daily, with Iron and Ergot, conjoined with vaginal injections of hot water morning and evening; later in lieu of the mercurial the Syrup of Ferrous Iodide in 20-drop doses thrice daily, was thoroughly efficient treatment in one very bad case of retro-uterine hematocele (Hengst). **Surgical** interference has many advocates but is criminal in a large majority of the cases (E). If the case does not end in resolution it will terminate in pelvic abscess.

Prescriptions.

℞. Iodi, ... ℥j.
Potassii Iodidi, ... ℥ij.
Glycerini, ... ℥viij.

Mix and saturate 8 oz. of cotton with the mixture; then carefully dry, and label "Iodized Cotton."

Hematuria.

Turpentine, when with constitutional debility (B); in very small doses (R); often is very efficacious (P). [See under HEMATEMESIS, for formula.] **Hamamelis**, has arrested severe cases (R). **Chimaphila**, controls hematuria (P). **Gallic Acid**, the most uniformly successful remedy (B); gr. x–xx every hour or two (Da C). **Sulphuric Acid**, alone or with Gallic Acid, is an efficient remedy (Da C). **Acetic Acid**, in a case of alarming hemorrhage from the bladder, which occurred after an operation for vesico-vaginal fistula, and resisted all other means, an injection of apple-vinegar and ice-water, equal parts, succeeded in arresting it (Ghent). **Quinine**, large doses necessary; cures when intermittent or from malarial infection (B); useful in some cases of intermittent hematuria (R). **Iron**, the Tincture of the Chloride, ♏x–xx several times daily; in this affection the best form of Iron for internal use (Wa). **Ipecacuanha**, exercises a powerful influence (Wa). [See under HEMATEMESIS.] **Ergot**, by stomach or subcutaneously; may be combined with Ipecac, Krameria, or other astringents (B). **Ergotin**, hypodermically, is far superior for efficacy and rapidity of operation (Wa). **Matico**, the infusion, in doses of ℥ij every 2 or 3 hours, is fully equal to Gallic Acid, Lead, etc. (Thompson). **Ammonium Benzoate**, in 5-grain doses, for the albuminuria and hematuria of scarlatina (Hillier). **Cannabis Indica**, is especially indicated in dysuria and strangury when there is bloody urine (R). **Camphor**, in 2- to 5-grain doses is said to promptly remove the renal hyperæmia with bloody, coagulable urine, caused by Cantharis, Turpentine, Oil of Mustard, Copaiba, etc. (R). **Ice** in rectum or to perineum, for vesical hemorrhage (Thompson).

Prescriptions.

℞. Acidi Gallici, ... ʒss.
Ac. Sulphurici Dil., . . . ʒj.
Tinct. Opii Deodor., . . . ʒj.
Infusi Digitalis, ... ℥iv.

M. Sig.—Tablesp. every 4 hours or oftener. In hematuria, menorrhagia, purpura hemorrhagica, and the hemorrhagic diathesis. (D.)

℞. Ext. Ergotæ Fluidi,
Tinct. Krameriæ, . . . āā ℥j.

M. Sig.—A teasp. every hour or two.

℞. Ext. Ergotæ (Squibb), . . ʒj.
Aquæ, ... ℥j.

M. Sig.—For hypodermic use; ♏x contain gr. j.

Hemeralopia and Nyctalopia.

Strychnine, night-blindness; small doses, gradually increased, of service (Wa). **Mercury**, Hydrarg. Chlor. Corr. gr. ij ad aquæ ℥j, dropped into the eye twice daily, with blister on each temple, and mild aperients, has cured hemeralopia (Smith). **Quinine**, in as large doses as can be borne, after cathartic and emetic, for night and day-blindness (Howard). **Blisters**, small, 1½ inches in diameter, close to external canthus of the eye (Bampfield). **Electricity**, occasionally useful (Wa). **Rest**, protection of eyes from bright light, constitutional remedies, as indicated by state of general health, change of climate, speedily cure hemeralopia. It is sometimes merely a symptom of pigmentary degeneration of the retina, or a feature of scurvy.

Hemicrania.

Belladonna, when due to vaso-motor spasm, the face being pallid (B); the tincture in small and repeated doses if the disease be of reflex character (H). **Iris**, in blinding form, from hepatic trouble, right supra-orbital region; ♏j every half-hour for 3 doses, usually relieves promptly (Pf). **Cannabis Indica**, one of the most valuable remedies for megrim or sick headache, apparently acting on the nervous centre whence the disorder springs; is most useful in the intervals to prevent the attacks, and especially when the paroxysms are becoming more frequent; it may be combined in pill with either Iron or Aloes (K); of especial value in the congestive form, the tincture in repeated doses until physiological action is induced (H); gr. ⅓ of the extract before each meal, increased gradually to ½ or ⅔ grain, in the intervals, kept up for 3 months (Seguin); gr. ⅛ of the solid extract night and morning, very efficient in migraine, if used continuously for some time (Hare). **Camphor**, gr. iij–v, with xx or xxx-grain dose of Magnesium Carbonate, is very useful, especially in hysterical females (P). **Croton-chloral**, in milder forms without severe vomiting, headache being predominant; the Bromides are useful after it (R); rarely of any use, but if given it should be in 20-grain doses twice daily (H); **Guarana**, is useful (B), a very effective palliative; gr. xx every ½ hour, for three hours (P); its efficacy diminishes by degrees, attacks usually becoming longer (Tr); ʒij of fluid extract in course of an hour or two, to anticipate the attack when expected (Seguin). **Caffeine**, in typical migraine; gr. j ad ♏xxv–xxx aquæ hypodermically (P); is especially adapted when chronic gastric catarrh, gr. j every half-hour (B): the Citrate in grain doses every hour for some time before a paroxysm (Wa); gr. j every half-hour often gives marked relief (Smith). **Valerian**, of especial value when in exciteable temperaments; after profuse or painful menstruation (P). **Ammonium Chloride**, is exceptionally serviceable; seldom fails to cut short an attack (Austin); x–xv gr. doses (R); as a diffusible stimulant is very efficient, gr. xx up to ʒj every hour during the attack (H). **Sodium Chloride**, in small doses, proved very efficient in six positive cases attended by gastric distress (Rabon). **Antipyrin**, the most valuable single remedy for headache, especially in migraine and those cases of it for which Ergot and Amyl Nitrite are indicated; 5 grains at beginning of the attack often sufficient (Birdsall); of great value in true migraine, employed in twenty cases with unfailing benefit; less useful in the malarial or dyspeptic forms, and useless in uræmic (Thompson); one dose of gr. xx, or 2 doses of gr. x each, ½ hour apart, given in the prodromal period, or at the very beginning of a paroxysm, will invariably cut it short within an hour (Sprimon, Ungar, etc.). **Phenacetin**, has been given with great benefit, in doses of 2 grains with ½ grain of Caffeine Citrate, for migraine. **Podophyllin** or **Mercury**, bilious origin (R). **Bromides**, for true migraine; Raspail's Eau Sedative locally, gives great relief (B); when due to uterine disorder (R). **Potassium Bromide**, very serviceable in the paroxysm, also in continuous form (R). **Eucalyptus**, in cerebral anæmia (B). **Digitalin**, granules ($\frac{1}{60}$ bis die), for congestive hemicrania (B). **Ergot**, if due to miliary aneurisms of intercranial arterioles; also in congestive migraine, and in nearly all kinds (B). **Menthol**, locally in frontal headache due to migraine, is said to be very efficient (Wa). [See formula below.] **Piscidia**, is highly recommended (Wa); efficient in doses of ʒij of the fluid extract (Ford). **Arsenic**, for cerebral congestion and hemicrania (B); for throbbing pain in one brow (R); often has the best effect. Watson believed that gtt. iv–vj of Liq. Arsenicalis, 3 or 4 times a day, with due attention to the bowels, would cure 9 out of every 10 cases (Wa). **Aconitine** or **Veratrine**, ointment over brow (R); Aconitine internally is of great service (Seguin). **Phosphorus**, is strongly recommended (R). **Amyl Nitrite**, by inhalation, in migraine, with pallor of face (R). **Sanguinaria**, a few doses very successful, when migraine is due to gastric derangement (P). **Ignatia**, removes clavus hystericus (Pf). **Nux Vomica**, when of gastric origin (R). **Cimicifuga**, is strongly recommended (P). **Rubber Bandage**, applied tightly from eyes up, protecting the temporal arteries by pads, or a dry muslin bandage wetted after being put on (Weir Mitchell). **Acupuncture**, the needle run down to the cranium will give relief in clavus hystericus, when nothing else will do so (Pancoast).

Prescriptions.

℞. Quininæ Sulph., ... ʒss.
Pulv. Belladon., ... gr. x.
Ext. Digitalis, ... gr. xv.
Ext. Valerianæ, ... ʒss.
Mellis, ... q. s.

Ft. pil. no. xl. Sig.—2 to 10 pills daily, gradually increased, during 3 or four days before the expected attack.

℞. Mentholi, ... ʒj.
Alcoholis, ... ℥j.
Ol. Caryophylli,
Ol. Cinnam., ... āā ♏xx.

M. Sig.—Apply with finger over seat of pain.

℞. Ammonii Chloridi, . . . ʒvj.
Ammonii Bromidi, . . . ʒiv.
Spt. Etheris Nitrosi, . . . ℥j.
Syr. Pruni Virgin., . . . ℥iij.
Aquæ, ... q. s. *ad* ℥vj.

M. Sig.—Dessertsp. 3 or 4 times daily, conjoined with the use of *Raspail's Eau Sedative* (see page 108), locally.

℞. Aconitinæ (Duquesnel), . gr. $\frac{1}{12}$.
Alcoholis,
Glycerini, ... āā ʒj.
Aq. Menth. Pip., . q. s. *ad* ℥ij.

M. Sig.—Teasp. thrice daily.

(*Seguin.*)

Hemiopia.

When established, hemiopia offers little hope of cure, though it has no tendency to progress. In hemiopia scintillans, **Potassium Bromide**, gr. xl–lx daily, or band of such metal as idiosyncrasy of the patient may decide, with stimulants to ward off the aura; **Quinine**, **Iron**, **Hydropathy**, when Potassium Bromide fails (De Wecker).

Hemiplegia.

Strychnine, is most useful when members are relaxed; hypodermically, when paralysis incomplete, and the muscles flaccid but not wasted (B). [See PARALYSIS for formula.] **Potassium Iodide**, gr. x–xviij daily, occasionally proves effectual (Wa). **Galvanism**, constant current to the brain or cord, faradic to the muscles opposite those contracted (Hammond). **Physostigma**, prevents muscle wasting, and hence is given with benefit to hemiplegics; gr. $\frac{1}{80}$–$\frac{1}{10}$ of the extract repeated frequently (R). **Massage**, in hemiplegia and other forms of paralysis due to intercranial lesions, when cold and blue skin, wasting and contracted muscles, ulcerations, etc. (B). **Cocculus**, in hysterical, epileptic and choreic hemiplegia, acts well; also in hemiplegia from cold (P). [Compare PARALYSIS, FACIAL.]

Hemoptysis.

Atropine, gr. $\frac{1}{100}$ hypodermically, is remarkably efficient in stopping the bleeding in phthisical hemoptysis (Squibb). **Gallic Acid**, exceedingly effective (P); may be combined with Ergotin and Digitalis. [See HEMATEMESIS and HEMATURIA for formulæ.] **Lead Acetate**, with Opium (B); proves signally useful (Wa). **Ergot**, the fluid extract in 30- to 40-minim doses, every 3 or 4 hours, or hourly in severe cases; or Ergotin hypodermically for urgent cases, in 2- to 3-grain doses (R). **Opium**, should be freely used for the attendant excitement (W). **Ipecacuanha**, has been highly praised (R); in emetic doses arrests hemoptysis (Tr.), though in poisonous doses produces it (P). A well-founded case is recorded where Ergot and Gallic Acid utterly failed, and Ipecac was effectual; but it must be pushed to the nauseating point, in order to effect the control (Squibb). **Turpentine**, in drachm doses every 3 hours, may cause unpleasant symptoms which soon disappear on its discontinuance (R); has proved very efficient (P); after other hemostatics fail it is worthy of trial (Wa). **Alum** is serviceable in purely atonic hemorrhages (Wa); in 10-grain doses every 2 hours (B). **Oil of Erigeron**, is very efficient when no fever or other signs of constitutional irritation (Wa). **Hamamelis**, ♏j–ij of tincture, every 2 or 3 hours (R); ♏ij–x of fresh tincture several times a day (Pf). **Ferric Acetate**, a little added to water so as to taste, this constantly sipped (R): Iron spray will often arrest (B). **Digitalis**, has undoubted power over hemoptysis (B); small doses daily (P): infusion in large doses (R). **Arnica**, of great service, if from violence (P). **Aconite**, employed with best results (P). **Sodium Chloride**, half a teaspoonful of common salt, taken dry, repeated till nausea (R). **Sulphuric Acid**, the dilute acid a useful adjunct to other treatment (Wa). **Spinal Hot-water Bag**, to cervical or upper dorsal vertebræ (R). **Auxiliaries**,—Cold externally, acidulated drinks, perfect rest, and antiphlogistic diet (Wa).

Prescriptions.

℞. Ext. Ergotæ Fl., ... ℥jss.
Ext. Ipecac. Fl.,
Tinct. Opii Deod., . . aa ʒij.
M. Sig.—Teasp. every ½ hour.

℞. Plumbi Acetat., ... gr. xx.
Pulv. Digitalis, ... gr. x.
Pulv. Opii, ... gr. v.
M. ft. pil. no. x. Sig.—One every 4 hours. (B.)

℞. Aluminis, ... ʒj.
Sacch. Alb., ... ʒss.
Pulv. Ipecac. Comp., ... gr. xx.
M. ft. pulv. no. vj. Sig.—One powder every 2 hours. (*Skoda.*)

℞. Liq. Ferri Subsulph., . . ♏xx.
Aquæ, ... ℥ij.
M. Sig.—Use as spray by inhalation for 5 minutes every hour.

Hemorrhage, Hemorrhagic Diathesis.

Acids. **Sulphuric** sometimes very effective in uterine hemorrhage (B). **Dilute Vinegar** to leech-bites, piles, cuts, etc. (R). **Apple-vinegar** as injection for vesical hemorrhage. [See under HEMATURIA.] **Iron,** when hemorrhagic diathesis due to anæmia; the Tincture of the Chloride preferred (B); the Tincture of the Chloride as styptic (Wa); 1 or 2 teaspoonfuls of the concentrated solution in a glass of water an excellent hemostatic (Tr); the Acetate, just enough to make water taste, in hemorrhage of lungs and kidneys (R). **Ergot,** in uterine hemorrhage of any kind, and many forms of hemorrhage, Ergot or Ergotin of great value (P); not to be relied on alone (B). **Alum,** is sanctioned by high authority (B); dusted on in slight cases (R); in uterine and traumatic hemorrhage, when small vessels open (Tr). **Hamamelis,** ♏j–ij of tincture every 2 or 3 hours, effective in many forms (R). **Ipecacuanha,** produces hemorrhage in poisonous doses, yet has great energy in arresting it (P); exercises a powerful influence on internal hemorrhage generally, and in exhaustion therefrom; gr. j–ij every ¼ hour (Wa); in emetic doses serviceable (Tr). **Turpentine,** few agents more useful in the passive forms (B); small doses in hematuria (R); for serious hemoptysis, and hemorrhage of typhoid (P). **Belladonna,** hemorrhage from rectal ulcers (P). **Digitalis,** in uterine, and many other forms, of great value (P); with restoratives has undoubted power in the hemorrhagic diathesis (B). [See HEMOPTYSIS.] **Chimaphila,** controls hematuria (P). **Gallic** and **Tannic Acid,** in all passive hemorrhages, especially in that of the bladder (P). Tannic Acid for local use, Gallic for systemic effects upon remote parts. When hemorrhage occurs in relaxed and debilitated constitutions, Gallic Acid may be combined with Ergot and Digitalis (B). **Matico,** proves useful in many cases, especially menorrhagia, hematuria, and hemoptysis (Wa). **Nux Vomica,** in hemorrhagic diathesis, especially when occurring in anæmic subjects; also the Syrup of Iron, Quinine, and Strychnine Phosphates; no prescription more generally useful (B). **Aconite,** to reduce the circulation, in epistaxis, hemoptysis, etc. (P). **Cinchona,** internally very efficient in some forms of hemorrhage (Tr). **Copper Sulphate,** in stick, solution or ointment, to arrest hemorrhage from small vessels (R). **Arnica,** in hemorrhages (ecchymoses), from mechanical violence (P). **Rhatany,** the extract, one of the most powerful hemostatics (Tr). **Grape-cure,** as tonic for convalescents (P). **Alcohol,** in hemorrhagic diathesis, to elevate the arterial tension (B); Brandy, Wine, when heart suddenly enfeebled by hemorrhage (R). **Venesection,** will promptly arrest pulmonary hemorrhage (B). **Styptics,** are either needless or inefficient, hence practically useless in general surgery; hemorrhage should be controlled by either pressure or ligation (Roberts). **Hot Water,** sponged over a bleeding surface, the best agent to stop hemorrhage (Gross). **Transfusion,** when death imminent (B). **Ice,** internally in wounds or hemorrhage of lungs, or from stomach; small pieces frequently (R). **Rest.** Perfect rest often indispensable, especially in hematemesis, in which nutrient enemata may be required. [Compare DYSENTERY, EPISTAXIS, HEMATEMESIS, HEMOPTYSIS, HEMORRHOIDS, HEMATURIA, HEMORRHAGE POST-PARTUM, INTESTINAL, MENORRHAGIA, METRORRHAGIA, PURPURA, WOUNDS, etc.]

Prescriptions.

Pagliari's Styptic.

℞. Tinct. Benzoini, ... ℥viij.
Aluminis, ... ℔. j.
Aquæ, ... ℔. x.

Boil 6 hours in a glazed earthenware vessel, adding hot water in lieu of that vaporized, and keeping well stirred; filter, and put up in stoppered bottles.

℞. Infusi Digitalis, ... ℥ij.
Ext. Ergotæ Fluidi,
Tinct. Krameriæ, ... āā ℥j.

M. Sig.—A tablesp. as required in hemorrhagic conditions generally. (B.)

Pancoast's Styptic.

℞. Potassii Carbonat., ... ʒij.
Saponis, ... ℥j–ij.
Alcoholis, ... ℥iij.

Mix and use as a styptic especially for operations about the face. (*Jos. Pancoast.*)

℞. Ext. Ipecac. Fl., ... ʒij.
Ext. Ergotæ Fl., ... ʒiv.
Ext. Digitalis Fl., ... ʒij.

M. Sig.—Half teasp. to a teasp. at a dose, repeated as required. An excellent anti-hemorrhagic combination.

(B.)

Hemorrhage, Intestinal.

Turpentine, should be used (B); especially in typhoid (P). [See HEMATEMESIS, for formula.] **Belladonna,** for irritable and bleeding rectal ulcers (P). **Iodine,** in passive, gtt. j–ij of tinct. frequently repeated, of great service (B). **Sulphuric Acid,** is serviceable (B). **Lead Acetate,** often of great service, especially when used as an enema (Jenner). **Tannin,** one of the most serviceable remedies for the intestinal hemorrhage of typhoid fever (B). **Hamamelis,** very effective in intestinal hemorrhage, owing to its large proportion of Tannin (B). **Ergot** is most valuable; may be given hypodermically in urgent cases (R). **Gallic Acid,** gr. xv with gtt. iij–iv of Laudanum, in a winegl. of iced water, every 2 or 3 hours in the hemorrhage of typhoid (Jenner). **Opium,** a valuable adjunct to astringents, allaying the nervous excitement (Wa); is most useful (Da C). [Compare HEMORRHOIDS, DYSENTERY, TYPHOID FEVER.]

Hemorrhage, Post-partum.

Atropine, hypodermically, is remarkably efficient. [See under ABORTION.] **Hamamelis,** for persistent oozing (R). **Ipecacuanha,** in flooding after delivery (R). **Iron,** Monsel's solution, j to iij of water, strong enough and safe as injection (B); the Perchloride diluted (R). **Amyl Nitrite,** ♏v by inhalation, has stopped a hemorrhage promptly and permanently (Kerr). **Ergot,** a full dose of the fluid extract as soon as birth is completed, as a prophylactic (Playfair); hypodermically in urgent cases, gr. ij of Bonjean's Ergotin deeply into the tissues of the arm (Wa); ʒss doses of the fluid extract every 2 to 4 hours in secondary hemorrhage. **Cimicifuga,** will check post-partum hemorrhage, especially when tediously prolonged (P). **Digitalis,** the infusion best; a tablesp. bis die, or in urgent cases every half hour for 4 doses (B). **Nux Vomica,** gtt. xx; Ext. Ergotæ Fl. gtt. xxx; each hour for 2 or 3 doses (B). **Opium,** the tincture ʒj, with Brandy, in profuse flooding (R). **Vinegar,** a handkerchief soaked in vinegar and carried into the uterus, will often check a severe hemorrhage (Landis); is antiseptic, astringent and sufficiently irritating to produce contraction, yet not so irritating as to cause subsequent mischief, and always acts promptly (Penrose). **Tamponade** by absorbent cotton, plugs of linen, etc., is indicated in hemorrhage from abortion or placenta prævia (Parvin); never tampon after delivery! you might as well hang the woman by the neck (Wallace). **Auxiliary Measures** of importance are firm pressure on the uterus, compression of the abdominal aorta, the plug, and if necessary intra-uterine injections (Wa). **Hot Water,** 110° to 122° F., injected into uterus, extremely successful in checking post-partum hemorrhage (Atthill); the most prompt and certain method, and the least unpleasant to the patient (Parrish). [See also Dr. Cameron in Canada Med. and Surg. Jour., March, 1878, with record of 16 cases so treated.] **Ice,** to abdomen or within the womb (B); into womb or rectum (R). As a prophylactic against hemorrhage and to secure firm contraction of the uterus, a good method is to grasp the womb through the abdominal parietes with a hand kept cold by frequent immersion in a pan of broken ice, while waiting for the expulsion of the placenta; while one hand is kept on the uterus the other may be immersed in the ice. **Transfusion** of milk into veins may be necessary in cases of collapse (Thomas).

Hemorrhoids.

Galls, as ointment, very useful; the official Unguentum Gallæ, or combined with Lead and Opium (R). [See formula below]. **Iron,** a solution of the Subsulphate as wash to bleeding piles, which should then be well oiled (B); or an ointment of the Subsulphate, gr. xv to the ℥, locally night and morning, with gr. j of the salt thrice daily by mouth; gives excellent results. **Hamamelis,** by mouth, also as lotion or injection in bleeding piles (R); is employed with satisfaction; ♏ij–x of tincture several times a day; also as enema or suppository (Pf). **Nux Vomica**, emphatically beneficial (P). **Sulphur**, gr. v–x, with ʒj Confec. Sennæ, as laxative (R); exercises a most soothing influence (Wa). **Sulphides**, especially Blue Lick waters (B). **Podophyllum**, as cathartic for hemorrhoids of recent formation, bleeding from stasis in portal circulation (B). **Aloes**, causes congestion of pelvic viscera, yet Fordyce Barker shows it to be curative in piles, especially in recent ones, as after delivery (B); to greatly relieve bowels (R); cures by removing constipation (P). **Hydrastis**, as lotion or ointment to external piles, of great value; ♏v of tincture ter die internally at same time (P). **Ergot**, with or without Nux Vomica, in dilated hemorrhoidal veins without new tissue, given by the stomach and used locally will often cure (B). [See DIARRHŒA for formula.] **Stillingia**, will remove permanently when due to constipation, and temporarily when from hepatic obstruction (B). **Senna**, to procure soft and easy evacuations use the Confectio Sennæ at bedtime, gr. cxx in a bolus (B). **Iodoform**, the ointment, and in suppository (B). **Nitric Acid**, as caustic, followed by free use of Olive Oil (B, R); ℥ss–℥j ad Oss of water as lotion for bleeding piles (R). **Hyoscyamus** or **Stramonium**, leaves bruised, or ointment, locally, for pain (P). **Linseed Oil**, boiled, in doses of ℥ij twice daily, has quite a reputation as a remedy for piles (W). **Alum**, to painful bleeding piles, a crystal trimmed and passed into rectum, or as an ointment (B). **Ice**, to painful, bleeding piles, or cold water injected daily (B); locally, for pain after operation (R). **Leeches**, directly to swollen, irreducible, and painful piles (B). **Alkaline Mineral Waters**, excellent (B). **Carbolic Acid**, 3 parts to 1 of Olive Oil, a few drops injected into the tumor; a favorite and successful treatment by itinerants (Andrews); uncertain in all cases and in many fraught with danger (Gross): a good procedure; use 4 drops each of pure Carbolic Acid and Glycerin, and inject one tumor at a time (Hunt). **Grape-cure**, is used with success (B). **Saline Purgatives**, notably Epsom salts, in bleeding piles, combined with Sulphuric Acid, will often stop the hemorrhage (B). [See DYSENTERY for formula.] **Diet, etc.** Avoid stimulants, indigestible food and over-eating; during an attack use little animal food. Petroleum soap when piles protrude, with cold or tepid water ablutions. Injections, Oj cold or tepid water, are very useful. Stool should be at night. **Surgical Methods** are—the ligature for internal hemorrhoids, excision for external ones. **Ligation** is the proper treatment for the former, all other methods of operating radically being now discarded as unsurgical, and dangerous to life (Gross). **Thermo-Cautery** is used by Smith of London and many other surgeons, but is apt to leave behind fissures and ulcers, which are with difficulty healed. **Prevention.** Soft seats favor the production of piles, as also of uterine disorders, by pressure on the arteries as they emerge from the pelvis, and so tending to drive the blood into the interior of that cavity (Holden).

Prescriptions.

℞. Iodoformi, ... ʒj.
Balsam. Peruv., ... ʒij.
Magnes. Calcin., ... ʒj.
Cetacei, ... ʒss.
Ol. Theobromæ, ... q. s.
M. et fiant suppositoria xij. Sig.—One twice daily. (*Potter.*)

℞. Ext. Colocynth. Co., . . . gr. xxx.
Ext. Nucis Vom., . . . gr. vj.
Hydr. Chlor. Mitis,
Ext. Hyoscyami, ... āā gr. xij.
M. et div. in pil. no. xij.
Sig.—One as required for sluggish bowels. (*Barker.*)

℞. Pulv. Gallæ, ... gr. xx.
Pulv. Opii, ... gr. x.
Ung. Plumbi Subacet., . gr. xl.
Ung. Simplicis, ... ʒj.
M. et ft. unguentum. Sig.—Ointment for piles. (*Œsterlen.*)

℞. Pulv. Gallæ,
Pulv. Opii,
Plumbi Acetat., ... āā gr. xx.
Ung. Picis Liquidæ,
Cerati Simplicis, ... āā ℥ss.
M. et ft. unguentum. Sig.—Apply night and morning after bathing parts with cold water.

℞. Ext. Opii, ... gr. x.
Pulv. Stramonii, ... ʒj.
Pulv. Tabaci, ... ℥ss.
Ung. Simplicis, ... ℥ss.
M. Sig.—Ointment for piles.
(*Shoemaker.*)

℞. Ac. Carbolici. . . . . . . ʒij.
Ac. Tannici, ... ʒj.
Alcoholis, ... ʒiv.
Glycerini, ... ℥j.
M. Sig.—Hypodermic injection for piles.
(*Girard.*)

Hepatalgia.

Ammonium Chloride, grains xx–xxx, every 4 hours, is highly efficacious (Anstie). **Bryonia**, worthy of commendation in many liver affections (P). **Nux Vomica**, has been found of much benefit; dose should be small, gr. $\frac{1}{100}$ to $\frac{1}{12}$ twice or three times a day (P). **Quinine**, would naturally be thought of in malarial subjects, but does not afford any relief (Anstie).

Hepatic Cirrhosis.

Diuretin, for the dropsy. [See under DROPSY.] **Nitric Acid**, in long-standing diseases, as this, will augment flow of bile after liver has struck work from mercury (R); the mineral acids do not benefit (B). **Arsenic**, small doses perseveringly, give good results in improving the nutrition of the organ (B). **Bryonia**, of great value in many liver complaints (P). **Iodides**, are the best remedies for the first stage (B); Potassium Iodide is highly recommended by some authorities (Da C); the great measures in the treatment of this affection are Potassium Iodide, hydrotherapy, and a milk diet (Lanceraux). **Stillingia** and **Alkaline Mineral Waters**, are important in the first stage (B); Alkalies early, especially Carlsbad water, with total abstinence from alcoholic beverages (Legg). **Mercury.** Corrosive Sublimate in small doses, gr. $\frac{1}{40}$ thrice daily, for a long time, does benefit the condition, and has possibly cured a few cases (Da C). **Sodium Phosphate** is said to produce good results (Da C); has power to retard the sclerosis, and may possibly arrest the changes and restore a state of comparatively normal function (B). **Gold and Sodium Chloride**, in doses of gr. $\frac{1}{30}$, as an hepatic alterative, may be used conjointly with Sodium Phosphate (B). **Tapping** becomes necessary for the dropsy, though purgation and diuresis may help to lessen it (Da C). **Diet**, should be easily digested, especially milk, avoiding starches and fats, and quitting alcohol (Da C).

Hepatic Congestion.

Nitric Acid, in chronic congestion, will augment flow of bile after liver has struck work from excessive use of mercury (R). **Nitro-muriatic Acid**, is found useful in India, with the acid bath (℥iij ad gall. j) to hypochondrium (B); formerly held high rank but is now superseded by Ammonium Chloride; the acid baths being now rarely employed (Fayrer). [See page 465 for formula.] **Sulphur**, as Sulphates in purgative natural waters, small doses often repeated; Potassium Sulphate is occasionally poisonous (R). **Chelidonium**, as deobstruent (P); energetically affects the liver (Pf). **Iodine**, tincture and unguent, locally for hepatic engorgement after malarial attack; Ammonium Iodide in moderate frequent doses in functional derangement, from malarial disease (B). **Sodium Phosphate**, ʒj–ij, 3 or 4 times daily, in plenty of water, as a purgative (B). **Ammonium Chloride**, in passive congestion, and chronic torpidity, is well worthy of attention; gr. xx every 4 hours (Wa). an excellent remedy (Da C). **Turpentine**, epithems, hot, often found very beneficial (Wa). **Quinine**, gr. xv–xx with Morphine, gr. ¼–½, in the acute congestion due to climatic or malarial causes, no remedy so efficient (B). **Bryonia**, is worthy of commendation in liver affections of various kinds (P). **Iris**, really serviceable when stools clay-colored and skin jaundiced (B); is one of the best aperients in hepatic derangement (P). **Mercury,** valuable only as a purgative; its use restricted to cases where there is deficiency or excess of bile (B); a full Calomel purgative is of utility in cases of congestion (Wa). **Podophyllum,** the resin in congestion of the portal circulation, is especially useful (B); ⅙–¼ gr. doses every six hours will speedily relieve symptoms (P). **Sanguinaria,** is useful in hepatic engorgement without organic disease (P). **Colchicum,** in hepatic congestion and dropsy; an active remedy in congestion of the liver (B). **Resin-bearing Purgatives,** as Rhubarb, Podophyllum, Iris, Euonymus, etc., are all actively cholagogue. [See list on page 40.] **Ipecacuanha,** decidedly stimulant to the flow of bile (B); is the Indian treatment now for the local liver, given in large doses for a week or two (Da C). **Taraxacum,** has had a reputation, but I cannot recommend it (Da C). **Aliment.** No starches or fats; milk, eggs, oysters, beef broth, whitefish, etc. (B). **Cold Water Belt** around the abdomen, covered with oiled silk, gives great comfort in chronic cases (Da C). [Compare BILIOUSNESS, JAUNDICE, ETC.]

Prescriptions.

℞. Elaterii, ... gr. j.
Spt. Ætheris Nitrosi, . . . ℥ ij.
Tinct. Scillæ,
Tinct. Colchici, ... āā ℥ ss.
Syrupi Simplicis, ... ʒ j.
M. Sig.—Teaspoonful thrice daily.
(B.)

℞. Hydrarg. Chlor. Mitis, . . gr. vj.
Pulv. Ipecac., ... gr. j.
Sodii Bicarb., ... gr. x.
Div. in pulv. no. ij. Sig.—One at bedtime, followed by the following:—

℞. Ac. Nitro-hydrochlor. Dil., ʒ iij.
Elix. Taraxaci Co., . . *ad* ℥ vj.
M. Sig.—Dessertspoonful before meals, and a milk diet.

℞. Ext. Taraxaci, ... gr. lxxij.
Ext. Aloes, ... gr. xxiv.
Ext. Colchici Rad.,
Pulv. Ipecac., ... āā gr. xij.
M. et div. in pil. no. xxiv.
Sig.—2 nightly in chronic enlargement and torpidity. (*Martin.*)

℞. Sanguinariæ, ... gr. viij.
Podophyllini, ... gr. iij.
Ext. Hyoscyami, ... gr. iij.
Saponis, ... gr. viij.
M. et div. in pil. no. xx.
Sig.—2 to 4 pills daily. In hepatic torpor without organic disease. (*Phillips.*)

℞. Pil. Hydrargyri,
Pulv. Aloes Socot., . . . āā gr. iv.
Pulv. Rhei,
Ext. Hyoscyami, ... āā gr. vj.
M. et. div. in pil. no vj.
Sig.—2 pills every other night.

℞. Cinchonidinæ Sulph.,
Euonymini,
Leptandrini,
Juglandini,
Irisini, ... āā ʒ j.
Podophyllini,
Ext. Belladonnæ,
Ext. Hyoscyami, ... āā gr. x.
M. et div. in pil. no. lx.
Sig.—One pill thrice daily. In obstinate hepatic torpor. (*Blackwood.*)

℞. Euonymini, ... gr. xij.
Ext. Hyoscyami, ... gr. vj.
M. et. div. in pil. no. vj.
Sig.—One at bedtime, followed next morning by a full dose of an aperient mineral water.

℞. Potass. Bicarb.,
Potass. Citratis, ... āā ℥ j.
Syrupi Simplicis, ... ℥ vj.
M. Sig.—A teaspoonful to a tablesp. with a similar quantity of lemon-juice, in ½ glass of water; the whole to be drank while effervescing. (*Wood.*)

Hepatic Diseases.

Ammonium Chloride is highly serviceable in all cases of liver disease, whether due to organic changes or to functional derangement; especially indicated after the more acute symptoms have abated (Wa). **Nitro-hydrochloric Acid,** formerly held high rank, but is now superseded by Ammonium Chloride (Wa); even the acid baths, so long considered of great importance, are now but little, if ever, used in India (Fayrer). **Nitric Acid** acts in some way beneficially on long-standing liver-diseases, as in chronic congestion and cirrhosis (R); with vegetable bitters, long continued, useful in waxy liver (Wa). **Podophyllum** has a high reputation in a variety of liver diseases (P); is actively cholagogue (R). **Mercury**, mercurial purgatives are used for both deficiency and excess of bile; harmful in many acute forms of hepatic disease, and generally are of doubtful propriety in liver affections (B); in hepatic congestion a full Calomel purge is of great benefit (Wa). **Red Mercuric Iodide**, as ointment, gr. j to ʒv, gives best results in malarial enlargement of the liver (W). **Calomel** is used in inflammatory disorders of the liver, but is less suited to parenchymatous than to serous inflammations (Da C). **Ipecacuanha** promotes the flow of bile (B); may be used in small doses with great advantage in functional derangement of the organ (Wa). **Resinous Purgatives**, as Leptàndra, Iris, Euonymus, Rheum, etc., are decidedly cholagogue (B). **Euonymin** is of great value in torpid liver and its accompanying headache (W). **Bryonia** is worthy of commendation in liver affections of various kinds (P). **Chelidonium** powerfully affects the liver (Pf). **Taraxacum** is highly recommended in all chronic affections of the liver, especially in indolent enlargement and incipient scirrhus (Watson). **Sodium Phosphate** is cholagogue, and extremely useful in liver affections, especially the jaundice of children and hepatic calculi (Thudicum). **Phosphorus** specifically affects the liver, and used early in acute yellow atrophy may have an action of antagonism upon the disease (B). **Potassium Salts**, as depuratives, are of decided value, especially the Citrate, in hepatic torpor and other affections (W). [See preceding article for formula.] **Sulphur**, the sulphurous mineral waters, prolonged, give excellent results in liver disorders (B). **Alkaline Waters** are very serviceable (B); especially the Sulphur waters; Glauber's salt in their place (Da C). **Chlorine Water** has been employed with benefit in chronic hepatic affections, in doses of ʒss-ij in ℥iij or iv of water (W). **Iron** preparations, long continued, in amyloid degeneration (Da C). **Gentian**, and other bitter tonics, in functional disorder; also **Nux Vomica** occasionally, but use Mercurials and Podophyllum sparingly (Da C). **Iodine and Iodides** in waxy enlargement, simple hypertrophy and chronic congestion, of great value (Wa); Potassium Iodide alternately with Ferrous Iodide in waxy liver (Frerichs); a few drops injected into hydatids (B). **Sanguinaria** is of great value in hysteria from chronic hepatitis, and in hepatic engorgement without organic disease (P). [See preceding article for formula.] **Stillingia** for torpid liver and jaundice following ague, in the first stage of cirrhosis, and in ascites from hepatic changes (B). **Malt Liquors** are harmful in all chronic affections, especially in fatty liver (B). **Galvano-puncture** for hydatids, the negative needle into the hydatid (B). [Compare Lists of Agents acting on the Liver, page 40, *ante;* also, the articles in this section entitled BILIOUSNESS, CALCULI, CANCER, HEPATALGIA, HEPATIC CONGESTION, HEPATIC CIRRHOSIS, HEPATITIS, JAUNDICE.]

Hepatitis and Hepatic Abscess.

Ammonium Chloride, is almost a specific in hepatitis and abscess of the liver (Stewart); often preventing the latter disorder, and in many instances curing it (Wa). **Quinine**, in large doses for the acute parenchymatous inflammation (Da C). **Tartar Emetic**, gr. ¼–½, every two or three hours, with Opium or Calomel as indicated by symptoms; of especial value early in the acute attack (Wa). **Leeches** to margin of the anus in the acute type (B); to unload the portal system (Wa). **Mercury** is used, but is better suited to serous inflammations than to parenchymatous ones (W). **Chelidonium** has been used with benefit in both acute and chronic hepatitis (P). **Alkalies and Colchicum** when the affection is of a gouty nature (Wa). **Sulphites** are recommended in chronic forms (Da C). **Sinapisms** and Linseed poultices over the hepatic region in acute hepatitis (Wa). **Saline Purgatives**, as the Sulphate of Sodium or Magnesium, to increase the watery exudation from the mucous membrane of the intestines, in acute hepatitis (Wa). **Nitro-Hydrochloric Acid**, for some time, in chronic form tending to abscess (Da C). **Aspiration**, when pus forms; early operation the rule of practice; has induced many recoveries (Da C). [Compare JAUNDICE.]

Hernia.

Opium, or Morphine hypoder. to narcotism, often obviates the necessity of an operation in strangulated hernia (Wa). **Chloroform**, of evident benefit (Wa); inhaled to assist reduction (R); has superseded the use of Tobacco and Lobelia in strangulated hernia (P). **Coffee**, large doses, has certainly a remarkable influence in aiding or causing reduction of strangulated hernia (Wa). **Oak Bark** extract, as injection into the tissues, for a radical cure by stimulating the occlusion of the rings (Heaton's radical cure). A similar operation was patented by a Dr. Gage in 1840, the Oil of Cloves being the injection used. Professor Pancoast injected Tinct. of Iodine for the same purpose. **Operations** for radical cure all unsatisfactory; a properly adjusted truss is the best remedy for a reducible hernia, answering the purpose of a retentive apparatus, and often permanently curing the disease by the steady, gentle and uniform pressure of its block (Gross). **Ice Poultice** is of use if no strangulation of gut or omentum (Wa). **Sternutatory**, as snuff or Ipecac, to cause sneezing while patient lies on his shoulders with elevated hips and legs over the back of a chair, frequently successful after taxis has failed to effect reduction.

Herpes.

Ferrum Arsenate, in doses of gr. ⅕ daily, will effect the cure of a herpetic affection in the adult, however extensive or long established (Duparc). **Mercury**, Calomel ointment, ʒj to the ℥, is one of the best mercurial preparations (Pereira). **Potassium Carbonate**, as lotion, gr. xxx to Oj, to allay irritation (Wa); or as ointment, gr. xx to ℥j, smeared over eruption at night, and washed off in the morning with a solution, gr. xxx to Oj (Neligan). **Glycerin**, diluted, is a serviceable application in herpes labialis (Wa). **Ergot**, the Oil prepared by the action of Benzin upon Ergot, which, upon evaporation of the solvent, makes a valuable application in herpes genitalium and other skin affections (Shoemaker). **Alum**, in herpes præputialis, a solution of ʒj to ℥j aquæ, applied on lint to the glans penis, is generally effectual (Wa). **Collodion**, the flexible form, is applicable to various kinds of herpes (Wa). **Magnesium Citrate**, as a cooling laxative, with soothing and protective lotions and ointments, and the **Liquor Picis Alkalinus**, diluted 10 to 20 times for the itching (Bulkley). **Astringent Lotions**, of Tannin or Zinc Sulphate, in herpes præputialis, to render the parts less sensitive (Da C). [For Herpes Circinatus see TINEA CIRCINATA.]

Prescriptions.

℞. Tragacanthæ, ... ʒij–iv.
Liq. Calcis, ... ℥iv.
Glycerini, ... ℥j.
Aquæ Rosæ, ... ℥iij.
M. Sig.—A soft jelly for local use as ointment.

℞. Ac. Carbolici, ... gtt. v–xv.
Pulv. Calaminæ Præp.,
Zinci Oxidi, ... āā ʒss–j.
Ung. Aq. Rosæ, ... ℥j.
M. et ft. unguentum.
A soothing and protective application.

Herpes Zoster.

Rhus Toxicodendron, very readily subdues, especially when burning or itching (P). **Aconite** and **Opium**, locally for pain (Wa). **Morphine**, oleate ext., without friction (R); hypoder. to mitigate the pain (Anstie). **Celandine** has been recommended (P). **Dulcamara**, has an old reputation (P). **Silver Nitrate**, painted on the warning patch of erythema, before or as soon as vesicles begin to form (R); as a local application, reported on favorably (Wa). **Veratrine**, as ointment (gr. xx–xl ad ℥j), in neuralgia following shingles (R). **Zinc Phosphide**, gr. $\frac{1}{3}$ every 3 hours, is said to control the pain and abort the eruption (Hughes). **Grindelia**, is reputed to relieve the pain (Stillé). **Mercury**, the Ung. Hydrarg. Ammoniat. is said to relieve the pain and irritation remarkably (Wa). **Blisters**, for subsequent neuralgia (R). **Hot Fomentations** will often disperse (R). **Baths** daily, exercise out of doors, abundant nutritious food. **Flexible Collodion**, constantly reapplied to exclude air (Anstie). **Galvanization** of the affected intercostal nerves, the positive pole over their points of emergence, the negative brushed over the terminal filaments of the skin (B). **Starch**, dusted over the eruption, and on a muslin band sewed tightly around the body to protect it from the friction of the clothes, gives the greatest relief (Bulkley). **Rest**, absolute, when eruption is extensive (Fournier).

Prescriptions.

℞. Zinci Phosphidi,
Ext. Nucis Vomicæ, . āā gr. x.
M. et div. in pil. no. xxx.
Sig.—One every 2 to 4 hours, as a nerve tonic. (*Bulkley.*)

℞. Liq. Sodii Hypochlorit., . ℥iv.
Aquæ, ... ℥ij.
M. Sig.—Wash for ulcerated vesicles.

℞. Bismuthi Subnit., ... ʒiv.
Hydr. Chlor, Mitis,
Zinci Oxidi, ... āā ʒj.
M. ft. pulvis. Sig.—To be dusted on cotton-wool, and applied to the ulcerated vesicles, after washing with the solution of Sodium Hypochlorite. (*Fournier.*)

Hiccough.

Nux Vomica, in 5- or 10-♏ doses of tincture, with ♏xv of dilute Nitric Acid; a short course frequently curative (P). **Chloroform**, combined with Opium (R). **Pepper** gr. ij–x, to stop hiccough (P). **Laurel-water**, a useful remedy, ♏v (P). **Morphine**, hypoderm., often arrests (R). **Camphor**, has been recommended (R). **Mustard**, ʒj infused in ℥iv aq. fervid. has cured most obstinate cases (R). **Pilocarpine**, gr. $\frac{1}{36}$ of the Muriate, has cured bad cases which resisted all other means (Ortille). **Ether**, as spray to the epigastrium for ten minutes, then to the site of the phrenic in the neck (Regoni); or the spirit, ♏xx–xxx in some aromatic water, given internally, will often arrest the spasm immediately (Wa). **Zinc Valerianate**, gr. $\frac{3}{4}$ with a small portion of Extr. Belladonnæ, cured a severe case of fifteen days duration (Danet). **Nitro-glycerin**, sometimes arrests (R). In mild cases deep inspirations, holding breath as long as possible, or a firm belt around epigastrium (T).

Hydrocele.

Iodine, injection of tincture 1, water 2, into the sac to excite obliterative inflammation, the usual procedure for radical cure after tapping the sac (Wa); may be used full strength, or with equal part of water; the latter the safest method in ordinary cases, but relapses are not infrequent (Gross). **Carbolic Acid**, ʒss, with a minute quantity of water or Glycerin to render it fluid, injected into sac and manipulated to bring all portions under its action, after which rest in bed and support to scrotum (Levis); a very efficient method for radical cure, but may cause erosion of vessels and hemorrhage into sac (Gross). **Ammonium Chloride**, as discutient lotion to the scrotum in hydrocele of children (Wa). **Galvano-puncture**, a current of 20 to 40 elements, by two needle electrodes, will invariably cure (B). **Operations** for radical cure include that by iron-wire sutures to excite adhesive inflammation (Simpson); and the incision of the hydrocele under antiseptic precaution (Volkman); the same end may be obtained by the simpler methods of injection noted above (Gross). [Compare DROPSY, ORCHITIS.]

Hydrocephalus, Acute.

Iodine, lotions to scalp, or inunction of Iodine ointment together with Ferrous Iodide and Cod-liver Oil internally, offer the best chance of success, although most remedies often fail (Wa). **Tartar Emetic**, the oint. as counter-irritant to scalp in tubercular meningitis (R); in large doses internally was formerly employed (Wa). **Croton Oil**, is said to have removed the excess of fluid from the ventricles (R). **Mercury**, Hydrarg. Chlor. Corr., in doses of gr. $\frac{1}{30}$ to $\frac{1}{16}$, has proved successful (Wa). **Magnesium Carbonate**, ʒj–ij saturated with Lemon-juice, every 2 or 3 hours, a useful purgative in hydrocephalus (Wa). **Turpentine**, in doses of ♏v–x with ♏xx–xl of Castor Oil, or terebinthinate enemas, in incipient hydrocephalus (Wa). **Purgatives**, in small doses, every 4 or 6 hours after having overcome the constipation, to maintain action for some days; a single dose of Calomel, followed up by Magnesium Sulphate at short intervals; their value can hardly be overrated (Wa). **Leeches**, on crown of head rather than on temples, when much febrile action; inadmissible if patient is much debilitated; sometimes serviceable (Wa).

Hydrocephalus, Chronic.

Mercury, holds a high place in the opinion of many. Calomel gr. ¼–½ twice daily, with mercurial inunction to the shaved head, or the latter alone; child to wear a woollen cap; this treatment for 30 or 40 days (Wa). **Ferrous Iodide**, with Cod-liver Oil, always gives good results among the poor (Wa). **Iodine**, lotions. [See HYDROCEPHALUS, ACUTE.] **Potassium Iodide**, may arrest progress (Wa); is of value certainly; appears to have power of promoting absorption (Wa). **Cod-liver Oil**, sometimes improves the condition, especially in scrofulous children (Wa). [Compare DROPSY.]

Hydrophobia.

Belladonna, in all hyperæmic states of the brain and spinal cord, is one of the very best remedies (P). **Stramonium**, is used by Brahmins in India with apparent success. **Glonoin**, may be of benefit (Wa). **Nicotine**, rightly used, will probably prove to be our best remedy (B). **Amyl Nitrite**, should be fairly tried (B). **Hydrastinine**, is used with benefit, in grain doses of the Hydrochlorate, hypodermically. **Curare**, is encouraging, gr. ⅓ injected, 7 doses in 5½ hours, dispelled the symptoms, but replaced them by paralysis of the limbs continuing for over 2 months (Ros); has seemed to antagonize the convulsive phenomena (B). **Calcium Chloride**, a filtered solution injected into wound, very effective in snake bites (Binz). **Morphine**, chiefly palliative; for deep injection into the tetanized muscles (B). [See TETANUS.] **Coniine**, is indicated; has not succeeded (B). **Cauterization**, with hot iron or Caustic Potash after cleansing wound, which should be kept open by Unguentum Basilicon for 5–6 weeks (Ros); with **Silver Nitrate** sharpened to a point, and applied freely to every sinuosity of the wound as preventive (Wa). **Excision**, the safer practice (Wa). **Baths**, warm and hot, produce calm (Ros). **Pasteur's Inoculation**, with a "modified virus," is claimed to protect the person bitten from the disease. A recent report of the Pasteur Institute in Paris, states that during the last 8 years there were 14,430 persons treated thereat, with 72 deaths, an average mortality of 0.5 per cent., and a yearly mortality which varied from 0.94 per cent. in 1886, to 0.22 per cent. in 1892, and 0.24 per cent. in 1893.

Hydrothorax.

Diuretin, has been employed with benefit. [See under DROPSY.] **Digitalis**, in purely dropsical form, also in passive pleuritic effusions; used as a diuretic (ʒj–ij of infusion bis die, or oftener) of great value (R). **Elaterium**, unquestionably of value as a derivative, though many fear it (P). **Jaborandi**, produces good results (B). **Iodine**, ʒj of tincture injected in returning hydrothorax (B). **Sanguinaria**, has been used with the best effects (Wa). **Blisters**, when effusion has taken place, certainly seem to stimulate the absorbents to action (Wa). **Dry Cupping**, over the chest, gives relief (Da C). **Thoracentesis**, if much distress. [Compare DROPSY.]

Hypochondriasis.

Arsenic, in the aged, gives great comfort, especially when combined with Opium (B). **Ignatia**, is useful, the Tincture is best (P). **Cimicifuga**, of singular value in puerperal hypochondria, and in that accompanying spermatorrhœa, etc. (P). **Aurum**, the Chloride, gr. $\frac{1}{20}$ to $\frac{1}{30}$ ter die gives excellent results, when depression, vertigo, cerebral anæmia (B). **Valerian**, quickly relieves flatulence (B). **Asafœtida**, especially indicated in cases marked by flatulence and gloom (B).. **Potassium Bromide**, especially among female town-dwellers, but also in male (R); effects are variable, relieves some, not others (Wa). **Hyoscyamus**, when syphiliphobia (P). **Opium**, stimulant doses of the tincture are of great importance (B). **Caffeine**, the Citrate (gr. j–v) has been used as a cerebral stimulant with advantage (B). **Alcohol**, in hypochondriasis gives temporary relief; should never be given for its narcotic or stimulant effects in these cases (W). **Cocaine**, especially useful in cases marked by debility and nervousness, and in mental affections accompanied by depression; the fluid extract of Coca may be used, either alone or in wine (Br). **Turkish Baths**, are useful for town-dwellers, with soft, flabby tissues, and mental depression (R). [Compare MELANCHOLIA.]

Hysteria.

Ignatia, useful in many forms of hysteria, with feeling of suffocation, sensation as of a ball rising to the throat, convulsive crying, flatulence, etc. (P). **Camphor**, in hysterical excitement (P). **Musk**, for many anomalous and distressing symptoms (R). **Chamomile Oil**, in the spasmodic and pseudo-neuralgic affections of hysterical women, a very excellent remedy (P). **Cimicifuga**, in hysterical chorea, is rapidly curative (P); for the headache (R). **Asafœtida**, in hysterical convulsive affections, with flatulence and cough (P); arrests paroxysm, valuable for flatulence (B); removes headache, peculiar sensations in head, and flatulence (R). **Valerian**, has great value, ʒss doses of fluid extract (B); useful in most cases, especially those of hysterical dyspepsia (P). **Zinc Valerianate**, especially at the climacteric age, for hysterical symptoms which can be traced to no particular cause (R). **Ergot**, with Iron and other tonics (See formula below), in cases depending on sub-involution of the uterus, with indigestion and anæmia (B). **Nux Vomica**, of great use in middle-aged subjects, with flatulence, weight on head, flushings and perspirations (R). **Atropine**, for hysterical aphonia, gr. $\frac{1}{120}$ to $\frac{1}{80}$ morning and evening (B). **Ether**, for the flatulence, and for the hysterical paroxysm in sudden seizures (B). **Ammonia**, the aromatic spirit for the acidity and eructations (B); the fetid spirit for flatulent colic, etc., may be given with great advantage in doses of ʒss–j (Wa). **Potassium Bromide**, gives control, and prevents paroxysms; when verging on nymphomania large doses required (R). **Iron**, a course often useful, especially when anæmia or uterine obstructions (R). **Phosphorus**, in hysterical paralysis (R). **Arsenic**, lessens mobility of nervous system, and improves nutrition (B). **Opium**, gtt. j of Laudanum with gtt. ij of Tinctura Nucis Vomicæ 3 or 4 times a day, for flushings, weight on head, depression (R). **Ovarian Compression**, has in many cases relieved recent hysterical contractions, and many other similar phenomena (Bourneville). **Electricity**, for aphonia, paralysis and anæsthesia, and to educate the nervous control; is the sworn enemy of hysteria. **Accessory Measures.** Occupation of mind and body; removal from influence of friends; complete abandonment of the use of alcohol; the shower-bath or cold-bath, as an educator of the will, as well as to invigorate the body; excitement to be avoided. The word "Hysteria" should never be applied to the case in the patient's hearing. Disorders of vision are often found at the bottom of hysteria; look for hypermetropia and astigmatism.

Prescriptions.

℞. Ext. Ergotæ, ... ʒj.
Ferri Sulphatis, ... ℥ss.
Ext. Nucis Vomicæ, . . . gr. viij.
Hydr. Chlor. Corros., . . . gr. ss.
M. Fiant pil. no. xxx. Sig.—One pill thrice daily. To improve digestion and anæmia. (B.)

℞. Tinct. Asafœtidæ,
Tinct. Valerianæ Ammon.,
Tinct. Castorei, ... āā ℥ij.
Aquæ Camph., ... ℥vij.
M. Sig.—A tablespoonful or two every hour.

Ichthyosis.

Zinc, the ointment or glycerite of the Oxide, especially the latter with a little Camphor added to it, is a most useful application (Wa); an ointment of the Sulphate, ʒj to ℥j, found very efficient (Wilson). **Sodium Bicarbonate**, as ointment, gr. xv–xxx to ℥j, or lotion, ʒij–iij to Oj (Devergie). **Copper Sulphate**, gr. x ad ℥j Unguentum Sambuci, a useful application (Wilson). **Ulmus**, in decoction, used internally, has cured the disease (Wa). **Cod-liver Oil**, applied locally with friction, has proved promptly curative. **Warm Baths**, may generally be employed with benefit (R); alkaline and vapor baths, with Sapo Mollis; and inunctions of oil or simple ointment, to prevent fissuring of the new skin (Duhring); frequent alkaline baths, with internal and external use of oily preparations, as Linseed and Cod-liver oils, yield the best results (Bulkley).

Impetigo.

Salol, locally, as an antiseptic and deodorant powder. **Arsenic**, is very useful [See ECZEMA]; the Iodide in doses of gr. $\frac{1}{10}$ has been employed with great success; or Donovan's Solution, ♏v–x (Wa). **Nitric Acid**, internally, frequently benefits (Wa). **Glycerite of Tannin**, an excellent application (B); during day, with poultice at night to remove scabs (R). **Quinine, Mineral Acids**, when from imperfect digestion (R). **Zinc**, the ointment of the Oxide, after subsidence of inflammation (R). **Sulphur**, internally, serviceable (R). **Calcium Chloride**, gr. xv–xxx, daily, in some vegetable infusion, well spoken of (Wa). **Mercury**. Citrine Ointment dilute, locally, is an excellent application (Wa); a very weak White Precipitate Ointment answers best in impetigo contagiosa, with a little Carbolic Acid lotion (1 to 20) if it does not yield (Bulkley): Calomel to cover the floor of the pustules, after opening, evacuating and washing them out (Da C). **Laurel-water**, relieves itching (P). **Grape-cure**, has proved excellent (P). **Flexible Collodium**, or Liquor Guttæ-perchæ, to cover the pustules, if located where they are liable to irritation (Da C). [Compare ECZEMA.]

Impotence.

Phosphorus, no remedy more efficient; the pill of Zinc Phosphide the most convenient form (B); gr. $\frac{1}{10}$ thrice daily. **Phosphoric Acid**, full doses, with gr. ss of Pulvis Cantharidis, an effective combination, especially in impotence of old age (B). **Aurum Chloride**, prevents decline of sexual power (B). **Cantharis**, with Iron is beneficial (B); in large doses (gtt. xx-xxx), with Iron and Phosphoric Acid or Nux Vomica (R); of doubtful efficacy (Wa). **Cubeb**, removes functional trouble (B). **Nux Vomica**, drop doses of tincture in atonic impotence (B); in large doses when spermatorrhœa (R). **Sanguinaria**, has decided aphrodisiac properties, but useful only in functional form (B). **Ser-**

pentaria, in relaxation and feeble erections, will often restore power; ʒss doses of tincture bis in die (B). **Ergotin,** hypodermically about the dorsal vein of penis, when its enlargement and too rapid emptying is the cause of impotence (B). **Cannabis Indica,** is a useful remedy; the best combination for functional impotence would be one of Cannabis, Nux Vomica and Ergot (B). **Polygonum Hydropiperoides,** is a useful remedy in the functional form, erections feeble, semen watery and testes soft (B). **Ferrum Arsenate,** acts as a tonic to the organs, and in full doses often benefits cases of functional form (B). **Damiana,** has been brought forward as a genital stimulant, and a remedy for impotence. but there is probably no ground for any confidence in such claims (Stillé), [Compare EMISSIONS, SPERMATORRHŒA, also List of Aphrodisiacs, *ante*, page 47.]

Prescriptions.

℞. Ferri Arsenatis, ... gr. v.
Ext. Ergotæ, ... gr. xxx.
Ft. pil. no. xxx. Sig.—One twice daily.

℞. Ext. Cann. Indicæ, . . . gr. x.
Ext. Ergotæ, ... gr. xl.
Ext. Nucis Vom., ... gr. x.
Ft. pil. no xx. Sig.—One pill night and morning.

℞. Quininæ Sulph., ... gr. xxx.
Strych. Sulph., ... gr. ss.
Ext. Ergotæ, ... gr. xv.
Mas. Ferri Carb., ... gr. xlv.
M. Ft. pil. no. xxx. Sig.—One pill 2 or 3 times daily.

℞. Sanguinarinæ, ... gr. ij.
Ext. Ergotæ, ... gr. xx.
M. Ft. pil. no. xx. Sig.—One pill thrice daily.

℞. Tinct. Sanguinariæ, . . . ʒiij.
Ext. Stillingiæ Fl., . . . ʒv.
M. Sig.—15 to 20 drops in water, thrice daily.

℞. Phosphori, ... gr. ss.
Ext. Nucis Vom., ... gr. vj.
Mas. Ferri Carbonat., . . gr. xl.
Ext. Gentianæ, ... gr. xxx.
M. Ft. pil. no. xxv. Sig.—One 2 or 3 times daily.

Inflammation.

Aconite, is especially indicated in inflammation of respiratory organs, eruptive fevers, and all inflammatory states of high temperature and sthenic reaction; not in adynamic states, or continued fevers, except for hyperpyrexia; may be advantageously combined with Opium (B); gives most brilliant results in many forms (R): always indicated in early stages of simple inflammatory fevers, in all inflammation of serous membranes, pneumonia, tonsillitis, acute rheumatism, erysipelas, etc.; is especially adapted to the uses for which bleeding was formerly employed (P). **Arnica,** is antipyretic, large doses (ʒss of tinct.) in sthenic, small doses (♏x) in asthenic inflammation (B); in inflammation of serous membranes it has given good results (P). **Belladonna,** in many forms no remedy more useful, notably scarlet fever, erysipelas, low fevers; for inflammation of eyes, boils, carbuncles, etc., Atropine externally, Belladonna internally; when much fever, may be combined with Aconite (B); both locally and internally in inflammation of the eye; is effectual in inflammation which threatens to end in abscess (R); in erysipelas, inflammatory sore throat, encephalitis, gouty and rheumatic inflammation, cystitis, pneumonia, etc. (P). **Gelsemium,** especially for inflammation of lungs and pleuræ, and in pneumonia (♏v-x of fl. extr. every two hours) (B); in acute stage of gonorrhœa is valuable (P). **Bryonia,** exceedingly valuable in pleurisy and other serous inflammations, especially pericarditis; after the aconite stage (P). **Veratrum Viride,** when much delirium and arterial excitement, useful at beginning only (B); in pneumonia, **Veratrine** is most valuable, also in acute rheumatism and generally as an antipyretic (P). **Tartar Emetic** in frequent minute doses, gr. $\frac{1}{16}$, renders incontestable service (B); in pneumonia, tonsillitis, pleurisy, bronchitis, and other inflammatory affections (R); gr. 1/6, frequently repeated, has the power of completely dissipating early local inflammations (Spender); quite as useful in arresting local inflammation as Quinine is in malarial fever (Lawrie). **Pulsatilla**, in acute and subacute inflammations with muco-purulent discharges, especially of eyes, ears, and nasal passages (P); also with Aconite in epididymitis (Pf).. **Mercury**, in acute glandular inflammation of throat and neck, in ileo-colitis, iritis, syphilitic inflammations of serous membranes, laryngitis (R). **Silver Nitrate**, locally in strong solution, gr. clx to ℥j of distilled water, painted over surface and beyond, after thorough cleansing and drying; no agent so safe, powerful or efficacious in subduing external inflammation (Higginbotham); a strong solution in Nitrous Ether is a most efficient application to check inflammation in superficial parts, as boils, felons, orchitis, synovitis, erysipelas, erythema, eczema, etc (B). **Iodine**, as liniment in vicinity of local inflammation to produce vesication (R). **Sulphides**, especially that of Calcium (gr. $\frac{1}{80}$) appear often to arrest suppuration; after formation of pus they hasten maturation and circumscribe inflammation; in boils, abscesses, and deep-seated suppuration, they improve the condition and promote healing (R). **Antipyrin**, **Kairin**, and other antipyretics. [See under the title FEVER.] **Alkalies**, especially Ammonium and Potassium salts, are very valuable in the stage of exudation (B). **Astringents**, locally in inflammations of mucous membranes (R). **Lead**, the Liquor Plumbi Subacetatis Dilutus as a soothing and astringent application to inflamed and erysipelatous surfaces (Wa); to eczema and other inflammatory diseases of the skin (Pf). **Digitalis**, the German antipyretic, is especially useful in pneumonia, bronchitis, rheumatic fever and scarlet fever (B); Aconite safer and better (R); locally and internally Digitalis is useful in inflammations, especially those of joints, of breast, erysipelatous and varicose: a fomentation of a teasp. of the dried leaves in half a pint of boiling water, or ʒj of tincture to the same quantity of water, applied by flannels to the part, will quickly subdue (Fairbank). **Quinine**, in peritonitis (Tr); is indicated in most acute forms, unless objections occur (P); has power to arrest inflammation in formative stage; with Morphine and in full doses (gr. xv–xx) may suppress many forms (B). **Chloral**, excellent when temperature is high, much delirium; gr. v every 3 hours (B). **Opium**, is important in most inflammations, but especially those of serous membranes; a full dose (gr. ¼ of Morphine) at first, smaller doses after; is especially curative in inflammation of intestines and peritoneum, and of cerebro-spinal meningitis, arachnitis, etc. (R). **Saline Purgatives**, valuable as part of the denutrition treatment, and to diminish arterial tension (B). **Salicylic Acid** is antipyretic, especially in septicæmic inflammation, and acute rheumatism, erysipelas, pneumonia (B); Sodium Salicylate more soluble (R). **Colchicum** often exercises a happy influence over certain acute inflammations, as bronchitis, conjunctivitis, etc., especially if occurring in gouty subjects (P). **Cocaine**, locally in commencing inflammations of mucous surfaces, to constrict the blood-vessels of the part (R). **Pilocarpus** gives good results in the exudative stage of pleuritis, iritis, keratitis, etc. (B). **Cold**, by Ice in bags, or cold water, a very useful agent. **Heat**, by hot water, fomentations, etc., often much better. **Ice**, in small pieces in a bladder applied to inflamed part (R). **Water**, cold and hot baths and packing very useful in all inflammations (B). **Alcohol**, is constantly prescribed, and is of value in low states, if symptoms after its administration are ameliorated (B). [See FEVER.] **Poultices**, useful in many inflammatory states, but often abused (B); to check formation of pus and assist in maturation (R). **Venesection**, when pulse hard, strong, full and frequent, a plethoric state of the system and great intensity of morbid action; if required, the earlier it is done the better (Gross); Leeches very useful in many forms where sthenic reaction and plethora; value of bloodletting probably due to derivative and counter-irritant effect (B); a remedy of great power for good or evil, now much neglected (Wa); local bleeding by leeches, cups, scarification, etc., should generally be preceded by some form of general depletion (Gross). **Aliment**, when no inflammation of the digestive tract, use milk and beef-tea alternately every 3 hours; no starches or fats; in intestinal inflammation, milk, eggs, animal broths, oysters, fish, but all food must be used with great caution; skim-milk treatment (B); Cod-liver oil in many chronic inflammations, as of heart, lungs, kidneys, etc. (R). [Compare the various titles, as BRONCHITIS, PLEURITIS, etc., also the list of Antiphlogistics on page 43.]

Prescriptions.

[See pages 477 and 478 for Lotion and Liniment formulæ.]

℞. Tinct. Aconiti, ... ʒj.
Tinct. Belladon., ... ʒij.
M. Sig.—Three or four drops in water every hour. (B.)

℞. Ammonii Chloridi, ... ʒv.
Acidi Acetici,
Alcoholis, ... āā ʒx.
Aquæ, ... q. s. *ad* ℥x.
M. et fiat lotio. Evaporating and discutient lotion.

℞. Antim. et Pot. Tart., . . . gr. ijss.
Magnesii Sulph., ... ℥ij.
Morphinæ Sulph., ... gr. j⅓.
Ac. Sulph. Aromat., . . . ʒss.
Tinct. Verat. Virid., . . . ʒjss.
Syr. Zingiberis, ... ℥ij.
Aquæ Destill., ... ℥x.
M. Sig.—Tablesp. every 2, 4, or 6 hours. Antimonial and Saline Mixture. (*Gross.*)

Influenza.

Salol and **Salipyrin,** were highly extolled during the epidemic of 1891. **Phenacetin,** is used with great benefit, both as a prophylactic and a remedy. **Phenocoll,** the Hydrochloride has been used with marked success, in epidemic influenza, and for the neuralgic pains thereof. **Acetanilid,** 2, with Salicylic Acid and Ammonium Bromide, each 1 part, forming the mixture called **Antinervin,** was used with much success during the recent epidemic in Scotland. **Strychnine,** for the underlying weakness and depression, the real enemy to fight against in the grippe, Strychnine is the best remedy we have (Huchard). **Digitalin,** crystallized, in dose of gr. $\frac{1}{60}$, in grippal pneumonia, in which, though the disease is in the lungs, the danger is in the heart (Idem). **Sodium Benzoate,** with Quinine and Caffeine [see formula below] in the simple form of the grippe (Idem). **Quinine Hydrobromate** in 8- to 16-grain doses, if the fever is high (Idem). **Quinine** has been used beneficially throughout the disease, especially after the acute stage, for neuralgic pains (Wa). **Ammonium,** the Liquor Ammonii Acetatis, combined with Nitric or Chloric Ether, is often of great service (Wa). **Sanguinaria,** is used with much benefit (Wa). **Cimicifuga** has been given with much success (R). **Camphor,** in solution, hypodermically [see formula below], 2 to 4 injections daily, with 3 to 6 of Caffeine and 2 to 3 of Ether, for grippal pneumonia (Huchard). **Camphoric Acid,** in one dose of gr. xx–xxx, dry on the tongue, not over 2 hours before the expected time for sweating, is remarkably efficient to prevent it. **Agaricic Acid,** gr. $\frac{1}{12}$–⅕ by mouth, is efficient against the sweating of influenza. **Bismuth Salicylate,** or Naphtol, Betol, Salol, or Benzo-naphtol, as intestinal antiseptics, when such are required (Huchard). **Sulphurous Acid,** by fumigation or inhalation, a few drops on boiling water; or as a spray, often controls influenza (R). **Menthol,** in 5 to 10 per cent. spray, is highly praised. **Benzol** vapor, is a reliable pulmonary antiseptic, and has been employed with very favorable results (Robertson). **Benzoin,** the compound tincture, ʒss–j, inhaled from a pint of hot water frequently (Da C). **Tartar Emetic** has been recommended strongly, but is too depressant (Wa); has extraordinary power of aborting local inflammations, especially those of respiratory apparatus. [See under INFLAMMATION.] **Spiritus Etheris Nitrosi,** in doses of ʒj–jss, in any convenient vehicle, is a popular and efficacious remedy (Wa). **Cocaine,** a 4 per cent. solution snuffed up nostrils or applied by spray-producer, very efficacious in the early stage (R). **Cubeb,** ʒss or ʒj doses of the tincture in ½-glass of Linseed-tea thrice daily, for the subsequent cough, often curing like a charm (R). **Opium,** best avoided in early stage, but later for the cough, with Ipecac, gives great ease; Dover's powder, with Nitre and Lobelia, is a good form (Wa). **Potassium Nitrate,** Nitre largely diluted, as lemonade, ʒj–ij in the course of the day, proves highly useful (Wa). **Turkish Baths** have been employed with marked advantage (Wa). **Hot Fomentations,** for the headache (R).

Prescriptions.

℞. Quin. Hydrobromat.,
Sodii Benzoat.,
Caffeinæ, ... āā gr. xxx.
M. et ft. pil. no. xxx.
Sig.—One pill thrice daily. (*Huchard.*)

℞. Ammonii Chloridi, . . . ʒjss.
Morphinæ Sulph., ... gr. ij.
Tinct. Sanguinariæ,
Syr. Ipecac, ... āā ʒiv.
Mist. Glycyrrh. Co.,
Aquæ, ... āā ℥jss.
M. Sig.—Teasp. as required for the cough. Each dose has of Morph. Sulph. gr. $\frac{1}{18}$.

℞. Ext. Cimicifugæ Fl., . . ℥ss.
Tinct. Opii Deod., ... ʒj.
Syr. Tolutani, ... ʒxj.
M. Sig.—Teasp. every four hours.

℞. Camphoræ . . . . ʒijss.
Ol. Olivæ (steriliz.), . . . ℥iij.
M. Sig.—ʒss hypodermically twice or thrice daily. (*Huchard.*)

℞. Ext. Ipecac. Fl., ... ʒij.
Tinct. Opii Deodor., . . . ʒiv.
Tinct. Aconiti, ... ʒj.
M. Sig.—Five to ten drops every two hours, for the bronchitis.

Insanity and Dementia.

Hyoscine, has strong power as a mental alterative; is particularly useful in that form of mental disturbance which renders the patient violent and abusive, restless and domineering, a nuisance to every one who has anything to do with him (Weatherly). **Opium**, Morphine the best form, especially for melancholics, climacteric and senile cases, which improve under its use; is hurtful in mania. **Chloral**, does as much harm as good, is best suited to wildly maniacal and erotic patients. **Potassium Bromide**, is almost discarded, except for epileptic cases. **Conium**, is useful, sparingly, for noisy patients, so also is Hyoscyamine. **Colchicum**, for gouty cases, which are numerous; cure the gout, and you may cure the insanity. **Shower-bath**, suitable for cases due to self-abuse; the wet pack in the mania of hystero-epilepsy. **Stimulants** rank high, next to quiet and absence from home.

Moral or Mental Treatment in recent times, is confided in greatly. With correct management from the start, nearly all cases of insanity unattended by paralysis or physical decay may be cured (Savage); this can be best administered in a well-conducted asylum or hospital for the insane, where security and the prospect of recovery will be better than in the best home; the total abolition of any one plan of treatment in favor of another would be a great mistake; more than half of first attacks of insanity are recovered from under good management, which is best attained under the direction of persons trained in this specialty (H). Recently, efforts have been made at the improvement of the insane condition by requiring them to attend school daily, with remarkably good result. **Tonics and Hypnotics**, should be used in cases requiring them. **Food**, of good quality is at the basis of treatment. **Kumyss**, a good food in hysterical dyspepsia and anorexia, being easily digested and preventing waste (Savage). [Compare DELIRIUM, HYPOCHONDRIASIS, MANIA, MELANCHOLIA.]

Insomnia.

Chloral, in 20 to 30 grain doses, by far the best hypnotic for many forms of insomnia (R); cautiously in that of delirium tremens (B); acts best in cases of purely nervous type (Wa); in combination with alcoholic preparations, especially if Bromides present, it is apt to separate and float on top as an alcoholate. (See *ante*, page 180). **Croton-chloral**, is feebler than Chloral and less toxic; as a hypnotic ʒj may be given (R). **Somnal**, is a combination of Chloral, Alcohol and Urethan, and strikingly efficient in the insomnia of convalescence from acute disease (Myers). **Paraldehyde**, in doses of ʒj–ʒij, one of the most efficient and safe hypnotics, being free from depressant action on the heart and other unpleasant by-effects. **Hypnal**, gr. xv–xxx, is credited with simultaneous hypnotic and analgesic action. **Hypnone**, is of moderate power, but said to be especially useful in the insomnia of acute alcoholism. **Urethan**, a pure but mild and safe hypnotic, especially useful for children. **Resorcin**, produces quiet sleep in general nervous excitability, and in the insomnia of typhus fever and pulmonary tuberculosis. **Chloralamid**, gr. xxx in ʒj of whiskey or brandy, in simple or idiopathic insomnia, or that from nervousness, hysteria, chronic alcoholism, but not when due to excitement or severe pain. **Sulphonal**, gr. xxx, in milk, 2 hours before effect is desired; an admirable hypnotic in many cases, but its efficacy decreases with use, and it is of no value in insomnia due to pain. **Trional**, is markedly hypnotic and sedative, acts surely and promptly in the insomnia of neurasthenia and organic brain affections; is better than Sulphonal or Chloral, in many respects (Schultze). **Tetronal**, is somewhat less hypnotic than Trional, but more of a sedative; the sleep from either lasts 6 to 8 hours, and is generally dreamless. Neither are of any use when insomnia is due to pain. **Potassium Bromide**, when from cerebral overaction, gr. xv before each meal, and gr. xxx on retiring; has cumulative effect (B); it increases hypnotic effect of Hyoscyamus, Belladonna, Cannabis Indica, Ether and Chloroform (R). **Hyoscyamus**, an effective substitute for Opium in children, ʒij–℥j of tinct. necessary, and without danger (B); when Opium disagrees (R). **Belladonna** or **Atropine**, hypnotic in some morbid states, especially those marked by prostration, low arterial tension, contracted pupils. **Ignatia**, for sleeplessness from nervous erethism, better than Morphine (Pf). **Gelsemium**, in simple wakefulness (B); and in that of drunkards, mania and over-excitement (R). **Coffee**, insomnia from lowering of nervous power, and chronic alcoholism (P). **Opium**, or **Morphine**, gr. 1/6–gr. ss, when pain (B); Codeine and Narceine are also hypnotic; should be given to act at n aturaltime for sleeping (R). **Sumbul**, ♏xxx-xl of tinct. with a little Chloric Ether, very efficient in the insomnia of chronic alcoholism (P). **Tartar Emetic**, and Opium, very effective when due to cerebral congestion, and when Opium stimulates (B). **Ether** or **Chloroform** in a full dose (R). **Phosphorus**, nutrition inactive; insomnia of the aged (B). **Humulus**, a hop-pillow effective (P); Tinct. Lupulinæ, ʒss–℥ss, as cerebral sedative. **Cocaine** has been used with some success (Wa). **Chamomilla**, ♏j of the tinct. every quarter-hour, an excellent sedative for children (Smith). **Cannabin Tannate**, in 8-grain doses, a good hypnotic (Fronmüller); very inefficient (W). **Cannabis** is very uncertain in its action (R). **Alcohol**, if from cerebral anæmia, a full dose of whisky or brandy; or in some a glass of ale or beer answers better (B). **Water**, a tepid bath just before retiring often effective; when head is hot apply cold to it, and a tepid bath to the body (B). [Compare NERVOUSNESS; also the list of Hypnotics on page 27; also the Analogues of CHLORAL, page 180.]

Prescriptions.

℞. Paraldehydi, ... ʒ ijss.
Alcoholis (99 per cent.), . ℥ jss.
Tinct. Vanillæ, ... ʒ ss.
Aquæ, ... ℥ j.
Syr. Simplicis, . . q.s. *ad* ℥ iv.

M. Sig.—A teasp. or two every hour until sleep is obtained.

(*Yvon's Hypnotic Elixir.*)

℞. Potassii Bromidi,
Chloralis Hydratis, . . āā ℥ ss.
Syr. Pruni Virgin., ... ℥ j.
Aquæ, ... q. s. *ad* ℥ ij.

M. Sig.—Teasp. in a winegl. of water. Repeat in one hour if necessary.

℞. Potassii Bromidi, ... ʒ iv.
Chloralis Hydratis, . . . ʒ iij.
Tinct. Asafœtidæ, ... ʒ iv.
Syrupi, ... ℥ vj.
Aquæ, ... q. s. *ad* ℥ vj.

M. Sig.—Tablesp. every 2 hours until sleep is induced. In the insomnia of hysteria.

℞. Chloralis Hydratis, . . . ʒ ij.
Potassii Bromidi, ... ʒ iij.
Tinct. Opii, ... ʒ j.
Syr. Aurantii Cort., . . . ℥ iij.
Aquæ, ... q. s. *ad* ℥ ij.

M. Sig.—Teasp. dose. May be repeated if necessary.

Intermittent Fever.

Quinine, as prophylactic, gr. v–x each morning in black coffee; begin with gr. v, add gr. j each week (R); in ordinary intermittents give 6 or 10 grain doses up to 20 or 30 grains, so as to have it all in 4 or 5 hours before the expected paroxysm; give the Sulphate and in solution to get its full action (Da C); for acute ague, gr. x in sweating stage, and same 5 hours before next paroxysm, and gr. x–xv at the septenary periods, until the third has passed; in pernicious form, gr. xx-xl are required, by stomach, rectum or skin, to secure safety of patient; best in combination with Morphine, and with continuous administration of Arsenic during intermissions; may be given in solution by rectum, or hypodermically (R); is almost specific in intermittents when uncomplicated, and of recent origin (Wa). **Chinoidine** may be used as a substitute for Quinine in doses twice as large (B). **Cinchonine, Cinchonidine, Quinidine,** the Sulphates of these alkaloids are scarcely, if at all, inferior to Quinine as therapeutical agents (Report of the Madras Commission, 1866); average dose of each, gr. x (Wa). **Cinchonidine Salicylate**, promises well as an antiperiodic (B).

Arsenic, the best remedy next to Quinine, especially useful in long-standing agues, of quartan type (R); useful as adjunct to Quinine daily, to prevent relapse; most important in chronic ague, with Iron; also as prophylactic small doses of Fowler's solution (B). **Hydrastine**, stands next after Arsenic; indications same as for Quinine (B); in doses of gr. ij–ix is strongly recommended (P). **Pilocarpine**, gr. ⅛ of the Muriate, in the cold stage, is strongly recommended by high authority, to excite profuse perspiration and thus lessen the attack (Da C). **Apiol**, when prejudice exists against Quinine; gtt. xv during an hour, in divided doses, 4 hours before paroxysm (B); is one of the minor remedies which often prove successful in mild cases (Wa). **Salicin**, as substitute for Quinine, but inferior (B); grs. x-xl, in mild cases (P). **Opium**, as Morphine, gr. ⅙–¼ hypodermically, not only lessens the chill but aids the action of the antiperiodic; is to be strongly urged (Da C); is useful in the pernicious variety, in combination with Quinine (B). **Capsicum**, the resins of black and red pepper, as adjuvants chiefly (B); promotes action of Quinine (Pf). **Nux Vomica**, has been used with success, but is now used as adjunct to Quinine (B); good in convalescence (P); has antiperiodic value not inferior to that of Quinine; Strychnine gr. $\frac{1}{40}$, equals gr. j of Quinine Sulphate (Wa). **Methylene Blue** is efficient, and has many advantages over Quinine, especially for very young children (Ferreira). **Chloroform**, to prevent an impending paroxysm; ʒj–ʒij (of spt.) before the chill, or by inhalation (B). **Narcotine**, gr. ij–v ter die, is eminently antiperiodic; no drug (except Quinine) cures intermittents so rapidly and surely, or with more freedom from disagreeable effects (Wa); said to be superior to Quinine (R). **Nitric Acid**, full doses every 4–6 hours (B). **Sodium Chloride**, in large doses during the apyrexia, ʒviij–xij, may occasionally prove efficacious (Wa). **Eucalyptus**, during convalescence (B); has been successfully used in treatment of ague, ʒj–ij of a tincture (Wa). **Carbolic Acid**, in 4-grain doses with Infusion of Ginger, cured a series of 8 cases which had resisted Quinine (Wa); its value established; ♏ss–ij in mint-water or gr. ¼ in ♏xx of water, hypodermically (Tessier); combined with Iodine is of great value in chronic malaria, and in acute cases after Quinine has stopped the paroxysm (B). **Mercury**, uncalled for in ordinary cases; but Hydrarg. cum Creta, Quinine and Rhubarb of service in obstinate intermittents of children in tropical regions (Wa). **Sodium Hyposulphite**, gr. xv–xx every two hours is said to cure (R). **Cascarilla, Chamomile, Quassia**, are used (R). **Gentian**, is valued chiefly as vehicle (P). **Ammonium Picrate**, proved wonderfully effective in India, where 10,000 cases were treated therewith (Clark). **Lemon**, in decoction, exceedingly efficient in preventing recurrence of the paroxysms after they have been broken up by the use of Quinine (Crudeli). **Emetics**, may cure many cases; one each morning will assist the action of Quinine; Ipecacuanha preferred to Antimony (R); only at commencement, inadmissible if gastric irritation (Wa). **Antimony**, at the onset and continuously in mild, uncomplicated cases; Tartar Emetic, gr. ⅓–⅙ every 2 hours, has been followed by complete cures (Moore). **Antipyrin**, is useless (Falkenheim). **Resorcin**, and similar agents, have no specific action, merely controlling the pyrexia (Wa). **Warburg's Tincture** is a remedy of great power, but produces such severe diaphoresis as to be dangerous to adynamic subjects (Maclean). **Purgatives**, in the intermission, before using the antiperiodic, is good practice; Podophyllum, Colocynth or Jalap (Da C). **Iron**, is valuable in chronic cases; the system should be thoroughly saturated with it (Da C). **Ergot**, for the enlarged spleen (Da C). [Compare the title MALARIA; also the List of Antiperiodics on page 43.]

Prescriptions.

℞. Quininæ Sulph., ... gr. xxxij.
Mucil. Acaciæ, ... ʒ ij.
Syr. Eriodyctii Aromat.
(Parke, Davis & Co.), *vel*
Mist. Glycyrrhizæ Co., *vel*
Velatine, ... q. s. *ad* ℥ ij.

M. Fiat emulsio. Sig.—A teasp. contains gr. ij of Quin. Sulph. Suspension of the Quinine without dissolving it makes the bitter taste less perceptible (Squire), and the Syrup of Yerba Santa covers the taste well. (*Potter.*)

℞. Quininæ Sulphat., ... ʒ j.
Ac. Hydrobrom. Dil., . . ʒ ij.
Aquæ, ... ʒ xiv.

M. Sig.—A teasp. contains gr. iij¾ of Quin. Sulph. The acid directed prevents the unpleasant cerebral action. (B.)

℞. Quininæ Sulph.,
Pulv. Acaciæ, ... āā ʒ ss.
Syr. Zingiberis, ... ℥ iv.

M. Sig.—A teasp. contains one grain of Quin. Sulph. A good formula for children, the quinine being suspended, not dissolved.

℞. Ac. Carbolici, ... ʒ j.
Tinct. Iodi Comp., . . . ʒ iij.

M. Sig.—4 drops every 4 hours in sufficient water. (B.)

℞. Massæ Ferri Carb., . . . ʒ j.
Ac. Arsenosi, ... gr. j.

M. Ft. pil. no. xx. Sig.—One thrice daily in chronic ague. (B.)

℞. Quininæ Sulphat., ... gr. lxxx.
Ac. Sulphurici Diluti, . . q. s.
Spt. Etheris Nitrosi, ... ʒ iv.
Syr. Tolu, Aquæ, . q. s. *ad* ℥ ij.

M. Sig.—A teasp. contains gr. v of Quin. Sulph. (*Da Costa.*)

℞. Quininæ Sulph., ... gr. xl.
Ferri Sulph. Exsic., ... gr. xx.
Ac. Arsenosi, ... gr. j.

M. Ft. pil. no. xx. Sig.—One thrice daily. (B.)

℞. Quininæ Sulph., ... gr. xxx.
Capsici, ... gr. xv.
Opii Pulveris, ... gr. iij.

M. Ft. pil. no. xx. Sig.—One to five pills as required. (*Piffard.*)

Intertrigo.

Bismuth, the Nitrate or Carbonate, as dusting powder (R). **Tannin**, the glycerite, excellent (R, P). **Camphor**, added to dusting powders, to allay heat and itching (R). **Lime-water**, to obviate irritating urine (R). **Soap**, free ablution with, when caused by acid secretions; use greasy applications afterwards (R). **Boracic Acid**, as ointment, ʒjss to ℥j of Vaselin, a very useful application (Wa). **Glycerin**, with Tragacanth, etc. [See under HERPES for formula.] **Calomel**, as ointment, ʒj to ℥j, is especially useful (Wa). **Zinc Carbonate**, as Calamine, a good dusting powder; so also is the Oxide, or Fuller's Earth.

Intestinal Obstruction.

Opium, even ½-grain doses every 4 hours, for 2–4 days, arrests dangerous symptoms, and brings a painless purgation (Brinton, P). **Morphine**, endermically (Wa). **Belladonna**, often successfully employed (P); gr. ¼–⅓ every few hours, when from want of tone and partial spasm (Tr). **Strychnine**, occasionally beneficial; cautiously in acute cases (Wa). **Mercury**, a full dose of Calomel, followed in a few hours by Castor Oil, and a Turpentine enema, affords relief (Wa). **Caffeine** acts upon the muscular tissue and often proves of

e utmost value (Wa). **Senna,** the infusion, in doses of ℥j–iij, forms an ef-
ient purgative (Wa). **Purgation** to be refrained from (Brinton). **Enemata,**
sufflation and surgical measures are often necessary. [Compare CONSTIPA-
ON, INTUSSUSCEPTION, HERNIA.]

Intussusception.

Belladonna, gr. iv of extract in an enema, has been successfully used (Wa).
pium, in full doses carried to narcotism, has been successful in many cases
Va); must be used freely to prevent inflammation (Macleod). **Effervescent**
nemata, have been employed with success (B). **Tobacco Enema,** may over-
me, and has proved exceedingly effective, but is dangerous; produces most
pressing nausea; not safe to use more than ℥iv of an infusion of ʒj to Oj
). **Inflation,** of intestines with air (*Hippocrates*), seems a most reasonable
echanical remedy. **Irrigation,** by hydrostatic pressure is resorted to with
ccess; requires care and gentleness (B). Hot water (Wa); Ox-gall, gr. x–xxx
the solution used, is especially efficient in cases arising from partial paresis
the bowels (Hawkins). The knee-chest position is the best during irriga-
n or inflation. [Compare HERNIA, TYPHLITIS.]

Irritability.

Ignatia, in small doses diminishes, in large doses excites irritability of cere-
o-spinal axis; the remedy *par excellence* (Pf). **Chloral,** gr. v, 2 or 3 times a
y, in irritability with nervousness and restlessness (R). **Chamomilla,** is an
cellent sedative for children, in doses of ♏j of the tincture every ¼ hour
mith). **Opium,** gives calm to the nervous system if used in medium doses.
rychnine, in functional irritability of the nervous system. [Compare INSOM-
A, NERVOUSNESS.]

Iritis.

Belladonna, locally and internally (R); ♏v every 3 hours, also as lotion (ʒj
extract to ℥iv aquæ), is of great value (P). **Atropine,** (solution gr. iv ad ℥j)
s a wide field of utility, as mydriatic (B); should never be omitted (C); is
sential in the treatment of every form, should be applied early in the case
d persevered in throughout its continuance (Lawson). **Mercury,** when of
philitic origin, as it usually is (B); the Bichloride is of great service (R); in
stic iritis of original severity, or in cases aggravated by improper treatment,
ercury is imperative, gr. ij of Blue Pill twice a day, until blue line on gums
). **Aurum,** the Bromide of Gold, Arsenic, and Mercury has been admin-
ered with evident advantage (E. A. Wood). **Duboisine,** as substitute for
ropine, is more rapid for effecting dilatation, less irritating to the conjunctiva,
d has less permanent after-effects (B). **Turpentine,** in so-called "rheumatic
tis" is very successfully used; small repeated doses (P). **Opium,** when
uch pain, an indispensable adjuvant, or Morphine hypodermically (C).
paiba, ʒij in mucilage, thrice daily, gives excellent results in iritis and
lerotitis, diminishing pain in 24 to 48 hours, and restoring sight (Hall). **Quinine**
d Iron, when the patient is feeble or anæmic. **Irritants,** or astringents
ould never be employed (C). **Surgical.** Paracentesis when increased ten-
n; Corelysis when only one or two adjacent adhesions. Iridectomy.
omplete functional rest to the eyes, by Atropine and a bandage with com-
ession pad; an absolute necessity during the whole period of treatment (C).
ompare SYPHILIS.]

Prescriptions.

. Hydr. Chlor. Corr., ... gr. j.
Potassii Iodidi, ... ʒj.
Tinct. Calumbæ, ... ℥ij.
Aquæ Destil , . . . q. s. *ad* ℥vj.
M. Sig—A dessertspoonful, in a wine-
ass of water, 2 or 3 times daily.
(*Lawson.*)

℞. Ol. Terebinth., ... ʒiij.
Syr. Acaciæ, ... ℥jss.
Aquæ Cinnamomi, ... ℥ss.
M. Sig.—Teasp. 4 times daily.

℞. Extracti Belladon., ... ʒj.
Ung. Hydrargyri, ... ℥vj.
M. Sig.—For inunction to brow.

Jaundice.

Salol, is one of the most efficient remedies in catarrhal jaundice. **Mercury,** in attacks with depression, sickness and coated tongue, gr. ⅙–⅓ of Gray Powder taken at onset, and repeated three or four times a day, very valuable (R); as purgative in jaundice from both deficiency and excess of bile, singularly enough (B); Gray Powder with Ipecac, followed next morning by Castor Oil, is well adapted to the jaundice of infancy and childhood (Wa); Mercurials and Podophyllum are better avoided, especially in obstructive jaundice, unless very marked indications for them exist (Da C). **Celandine,** was formerly employed as deobstruent (P); energetically affects the liver (Pf). **Hydrastis,** useful if continued for some time, in jaundice from catarrh of ducts (B). **Arsenic,** has been used with success in jaundice from catarrh of bile ducts after catarrh of duodenum; better for jaundice of malarial origin (B). **Nitro-Hydrochloric Acid,** internally, and acid bath to right hypochondrium; temperature of bath 96°, ℥iij to gall. j (B); when jaundice depends on torpor of the liver, or is catarrhal in origin (W); during convalescence, ♏v–x of the dilute acid in ʒj of a compound elixir of Taraxacum before each meal (Da C). **Quinine,** when due to malarial miasm, or when periodic (B). **Euonymin,** an hepatic stimulant of especial power (B). **Podophyllum,** in catarrhal and malarial jaundice (B); when stools exhibit no trace of bile, one dose has cured (Wa); is best avoided, unless markedly indicated (Da C). **Sodium Phosphate,** no remedy superior in jaundice from catarrh of gall-ducts; ʒj doses every four hours for adults: gr. x–xx for children (B). **Manganese,** in jaundice from malarial origin, or catarrh of biliary passages (B). **Aloes,** for simple jaundice of an atonic kind (B); when hypochondriasis (P). **Rhubarb,** for above maladies in children; white or clay-colored pasty stools; skin jaundiced (B). **Saline Purgatives** to depurate the upper bowel, as Rochelle salt; with alkaline baths, diaphoretics and diuretics (Da C). **Ammonium Iodide,** gr. j–iij in water every 2 or 3 hours in catarrh of bile ducts and jaundice;—Also **Ammonium Chloride,** with fluid extract of Taraxacum (B); in 20-grain doses every 4 hours, produces a decided change (Wa). **Stillingia,** relieves jaundice and torpid liver following intermittent fever (B). **Dulcamara,** employed with advantage (P). **Iris,** in malarial jaundice and that from duodenal catarrh (B). **Alkaline Mineral Waters,** especially in catarrh of duodenum or bile-ducts (B). **Potassium Salts,** the Chlorate in chronic or asthenic jaundice; the Sulphate the most useful saline purgative in jaundice (Wa). **Aliment.** No starches or fats; milk, eggs, oysters, beef broth, broiled or raw beefsteak, or whitefish (B): plenty of green vegetables at each meal; use cold water freely, avoid all high seasoning in food, and all liquors. [Compare HEPATIC CIRRHOSIS, HEPATIC DISEASES, CALCULI.]

Joint Affections.

Phenacetin, for the pyrexia of polyarthritis; is efficiently antipyretic and safe. **Aconite,** for pains in inflamed joints (R); the liniment locally in chronic arthritic swellings (Wa). **Mercury,** the oleate in chronic inflammation of the knee (R): Ung. Hydrarg. Ammoniat., diluted, ʒj to ʒiv at first, then ʒj to ℥j, by gentle friction 2 or 3 times daily, in chronic articular inflammations, by far the best application (P). **Rhus Toxicodendron,** internally and as lotion, is invaluable for subacute stiffness and aching of joints after acute rheumatic fever (P). **Iodine,** ʒiij–vj ad Glycerini ℥iij, Aq. destil. ℥iv, in numerous obstinate cases of joint affections consequent on rheumatism (Wa). **Ferrous Iodide,** with Iodine, locally, in scrofulous affections of the bones and joints (Wa). **Iodoform** has been used with satisfactory results in scrofulous affections of the joints and bones, by many continental authorities (Wa). **Salicylic Acid,** ʒj with ʒiv of Lanolin, and Ol. Olivæ, q. s. to make a paste, applied locally and covered with cotton, or rubbed in once daily for 3 or 4 days, then omitted for a week, and again renewed, is of proven value in many obstinate cases of stiff knees, pains from so-called rheumatism, painful ankle- and wrist-joints, etc. (Aulde).

Arsenic, often serviceable in rheumatoid arthritis and nodosity of joints; large doses continued, necessary (R). **Alcohol**, and water, equal parts, an excellent evaporating lotion (B). **Silver Nitrate**, a strong solution in Nitrous Ether is the most efficient application to check inflammation in small joints if applied early to adjacent vascular parts (B). **Cod-liver Oil**, in strumous subjects (R): the remedy on which most reliance may be placed in scrofulous joint affections (Wa). **Cold Douche, Galvanism, Turkish Baths**, for stiff joints (R). **Digitalis**, as fomentation, ʒj of tincture to O½ boiling water, applied on flannel, has proved very efficient in acute inflammations of joints (Fairbank). **Turpentine**, the liniment a serviceable application in chronic enlargement of the joints (Wa). **Sulphuric Acid**, as irritant ointment, ʒj of acid to ℥j of lard, very beneficial in chronic diseases of joints (Wa). [Compare BURSITIS, COXALGIA, GOUT, ARTHRITIS, RHEUMATISM, SYNOVITIS.]

Keratitis.

Atropine, renders great service by contracting vessels (B); by instillation, with enforced disuse, and a protective bandage, should be regarded as measures of course (C). **Mercuric** and Ferric Chlorides, with Cod-liver Oil, will accomplish all that medicine can do for interstitial keratitis in syphilitic subjects (C). **Calcium Sulphide**, proves most useful in doses of gr. $\frac{1}{10}$ to ¼, thrice daily, in sugar-of-milk trituration (Snell). **Arsenic, Potassium Iodide** or **Bromide**, **Iron** or **Quinine**, for constitutional effects in vascular keratitis; also counter-irritation by Iodine painted on the temples until soreness (C). **Ferric Perchloride**, successfully employed in panniform keratitis; a large drop of the solution dropped from a quill every second or third day (Wa). **Eserine**, lowers intra-ocular tension (B). **Astringents** or **Irritants** (as Alcohol in any form, Zinc Sulphate, Silver Nitrate, etc.), are entirely inadmissible (C). **Iridectomy**, is often beneficial in severe vascular keratitis (C). **Pressure-Bandage**, in severe suppurative forms, limits extent. **Water**, cold when inflammatory symptoms marked: hot (90–100° F.) in non-inflammatory form, to excite inflammatory reaction; should be discontinued when marked injection. [Compare CORNEAL OPACITIES.]

Prescription.

℞. Hydrarg. Chlor. Corr., . . gr. j
Ammonii Chloridi, . . . gr. vj.
Tinct. Belladonnæ, . . . ʒij.
Aquæ Destillatæ, ... ℥viij.
M. et fiat. collyrium.

Sig.—A teasp. in a winegl. of tepid water, to be applied frequently with a pledget of lint on the closed lids. In phlyctenular keratitis of children.
(*Turnbull.*)

Labor.

Ergot, only when uterine inertia, and after the first stage has passed; is dangerous if any obstacle in front; dangerous to child by paralysis of fœtal heart (B); is best given when head has passed the brim of pelvis (Wa). **Anæsthetics**, in protracted and painful labor; cautiously with primiparæ (B); increase the risk of post-partum hemorrhage (W). **Chloroform**, not to complete anæsthesia, lest uterine action be interrupted; usually begin when os is dilated (Simpson). **Chloral**, of great value to relieve pain; does not interfere with the exhibition of chloroform; should be given in 15-grain doses every ¼-hour till effect produced (Wa); the best of all remedies for rigid, undilatable cervix, gr. xv every 20 minutes for 3 doses, perhaps a 4th after an hour's interval (Playfair). **Ethyl Bromide**, a rapid, sure and safe anæsthetic, particularly suited to labor cases (Levis). **Opium**, facilitates dilatation, promotes expulsive power of uterus, lessens hemorrhage, stimulates longitudinal and oblique fibres of the os (Wa); a full dose of Morphine, gr. ¼, in tedious labors, with severe pains, will aid patient greatly and promote progress of the child; no bad results ensue; for relief of pains and after-pains, or painful complications (Wa); hypodermically in rigid os and cervix (R). **Cimicifuga**, exercises special action, similar to that of Ergot; is less dangerous to life of child and soft parts of mother (Wa); for mental disturbance and suppressed lochia (R); as *partûs accelerator* in lieu of Ergot, also to allay nervous excitement after labor, and to check post-partum hemorrhage (P). **Belladonna,** topically to uterus, of great service in long-protracted labors from rigidity of os and cervix (H). **Gelsemium,** quiets the "nagging" pains of the first stage; requires physiological doses (B); relaxes spasm in rigidity of the os (Wa). **Quinine,** to strengthen uterine contractions; used by many in place of Ergot (R). **Cannabis Indica,** the tincture gtt. xxx, as stimulant to uterine contractions, more prompt, less lasting, than Ergot (Wa). **Ipecacuanha,** after delivery; to promote natural functions (R). **Cotton-root,** as excitant of uterine contractions may be more energetic than Ergot (P). **Althæa,** the decoction, as vaginal injection in difficult labor (P). **Sodium Borate,** excites activity of the uterus, and is well employed in tedious labor, where there is deficiency of uterine contraction (Rigby). **Amyl Nitrite,** has acted admirably in a case of hour-glass contraction of the uterus; seems to antagonize the action of Ergot (Barnes). **Oil of Eucalyptus** is very valuable in effecting antiseptic midwifery (Wa). **Mercury,** the Bichloride, gr. vijss to a quart of hot water gives a $\frac{1}{2000}$ solution, probably the worst of all antiseptics for this purpose; is too dangerous for obstetrical use (Fleischman). [Compare Abortion, After-pains, False Pains, Hemorrhage Post-partum, Lactation, Puerperal Convulsions—Mania—Fever—Disorders.]

Lactation.

Pilocarpine, as a galactagogue, gr. $\frac{1}{8}$ of the Muriate in brandy on retiring, the patient to be covered well in bed; is efficient in direct proportion to its diaphoretic and sialogogue effects, these being evanescent, but its galactagogue power remains for weeks, an occasional dose only being required to spur up the secretion when flagging (Minges). **Antipyrin,** as an anti-galactagogue, 4-grain doses every 2 hours have proven highly efficient. **Belladonna,** internally or externally or both, in excessive lactation (R); Atropine gr. iv to ℥j Aquæ Rosæ on lint around the breast to arrest secretion of milk; remove when fauces become dry and pupils dilated (B). **Camphor,** locally to arrest the secretion; a saturated solution in Olive Oil or Glycerin, is more efficient than Belladonna (Wa). **Potassium Iodide,** in 25- to 30-grain doses internally, for the same purpose, is very effectual (Rousset). **Calcium Phosphate** and **Hypophosphite,** in debility from over-lactation (R, Wa). **Ammonium Chloride,** for the intercostal neuralgia of suckling women; gr. x-xx, every 3 or 4 hours (Wa). **Quinine, Tannin,** are used to arrest the secretion (R). **Alcohol,** as beer or porter, often useful in excessive lactation, not always (R). [Compare Abscess, Agalactia, Mastitis, Nipples, also the List of Galactagogues on page 49, *ante*.]

Excreted in the Milk, when taken by the nursing woman are—the Oils of Anise, Cumin, Dill, Wormwood and Garlic,—Turpentine, Copaiba,—the active principles of Rhubarb, Senna, Scammony, and Castor-oil,—Opium, Iodine, Indigo, Antimony, Arsenic, Bismuth, Iron, Lead, Mercury, and Zinc. Acids given to the mother cause griping in the child. Natural salts, as a rule, and the purgative agents above-named, act as purgatives to the child, and Potassium salts as diuretics. Turpentine, Copaiba and Potassium Iodide given to the mother, can be detected in the urine of the child. Opium given to the mother may narcotize the child, and Mercurials in the same manner may salivate it (Br). Atropine, Hyoscyamine, the Salicylates, and Potassium Sulphide, have also been found in the milk after their ingestion by the woman.

Prescription for Milk Fever.

℞. Tinct. Aconiti, ... ♏ xx.
Antim. et Potass. Tart., . gr. ij.
Spt. Etheris Nitrosi,
Syr. Simplicis, ... aa ℥j.
Aquæ Aurantii Flor., . . ℥ij.
M.

Sig.—A teaspoonful in a wineglassful of sweetened water, every two hours.
(*Fordyce Barker.*)

Laryngismus Stridulus.

Aconite, checks the spasm and relieves the croupous breathing (R). **Belladonna**, promises to be of value (Wa); Atropine, gr. $\frac{1}{100}$ in a goblet of water (60 doses), of which a teasp. every hour or ½-hour, will give prompt relief (Smith). **Bromides**, when uncomplicated except with convulsions (R); full doses will suspend an attack, and moderate doses steadily continued will prevent recurrence (B). **Ipecacuanha**, an emetic dose to cut short an attack (B). **Lobelia**, has been employed (R). **Chloroform**, quickly cures the paroxysm, a few drops on a handkerchief sufficient (B); may often be used with advantage (W). **Nitroglycerin**, will speedily allay the spasm (B). **Chloral**, gr. v–xv to prevent or arrest (B). **Quinine**, given between attacks to prevent (B); a most valuable remedy, but in small, repeated doses (P). **Emetics**, Tartar Emetic; Mercuric Sulphate (gr. iij–v) safer and better (R). **Conium**, is valuable, carried to a point of physiological effect (B). **Water**, wet pack to neck (B); cold sponging twice or thrice daily more successful than anything else, with out-of-door exercise; cautiously if hoarse voice indicates laryngitis (R). [Compare CROUP, LARYNGITIS.]

Laryngitis, Acute Catarrhal.

Aconite, very valuable (R); especially indicated in inflammatory states of respiratory parts; gtt. ss–j every half-hour till an impression is made on the fever, then every hour or two (B). **Antimony**, Tartar Emetic, gr. $\frac{1}{50}$, a very excellent remedy internally; larger doses in œdematous laryngitis, gr. $\frac{1}{12}$ with gr. iij of Dover's powder every 2 or 3 hours (Da C). **Iodine**, inhaled; also as counter-irritant painted over neck (B). **Morphine**, small doses to allay cough (A). **Sulphurous Acid** as spray is vaunted (Wa). **Leeches** to throat are valuable auxiliaries to general treatment in sthenic cases; or cupping at the nape of the neck (Wa). **Rumex**, has selective action on the laryngeal mucous membrane. [See page 366.] **Zinc** or **Copper Sulphates**, as emetics, in large quantities of warm water, where œdema slight (A); a solution of Zinc Sulphate, gr. xx to ℥j on sponge to larynx with aid of the laryngoscope if possible to use it (Da C). **Scarification**, by Mackenzie's laryngeal lancet, of great service in the œdematous form (Da C). **A Purgative and Diaphoretic**, with mucilaginous drinks, if given at the start may be sufficient (Da C). **Iron**, Monsel's solution, 1 part to 2 or 3 of water and Glycerin, an excellent local application (Da C). **Heat**, by poultices or fomentations (A). Hot-water stupes may succeed (Wa). **Inhalations** of hot steam, with Benzoin, the comp. tinct. gtt. x–xv to ℥j, with gtt. x Tinct. Opii, or Hops, or Conium, of great service (Da C). **Tracheotomy** ought not to be delayed, if inhalations, leeches, and fomentations fail (A, Wa); is especially indicated in sudden attacks of œdematous laryngitis, as those occurring in Bright's disease (Da C). **Ice**, steadily applied in bags over the larynx, if tracheotomy refused, has succeeded in bad cases; small pieces may be slowly swallowed (Da C). [For Croupous Laryngitis, see CROUP, MEMBRANOUS; for Spasmodic Laryngitis, see CROUP, CATARRHAL; for Œdematous Laryngitis, see GLOTTIS, ŒDEMA. Compare also LARYNGISMUS STRIDULUS, PHARYNGITIS.]

Laryngitis, Chronic.

Iodine, painted over neck as a counter-irritant, and inhalation of its vapor (B). **Sulphur**, Sulphurous Acid as spray in syphilitic or tubercular laryngitis, or a solution of Sodium Sulphite (ʒj to the ℥) in water (B); by inhalation, spray, or fumigation (R). **Carbolic Acid**, where long-standing hyperæmia with diminished secretion, ʒj–ij to the ℥ of Glycerin is a most successful application (Mackenzie). **Silver Nitrate**, powdered or in solution to chronically inflamed larynx, as in phthisis (R); a solution of gr. x or xx to ℥j, applied with a brush by the aid of the laryngoscopic mirror (W); formerly much used, but is objectionable (B); should be used with great caution, and only when a particular point can be seen for it with the laryngoscope (Da C). **Ferric Perchloride**, solution gr. lx-cxx ad ℥j Glycerini as local application (A). **Zinc Chloride**, gr. xx–xxx ad ℥j, in Glycerin. Alternation of topical applications of great value (A). **Copper Sulphate**, gr. xx to ℥j of water, locally twice a week (Da C). **Bismuth Subnitrate**, by insufflation, is highly recommended in the worst forms of laryngitis, even in that accompanying phthisis (Tr, Wa). **Menthol**, in spray containing 5 to 10 per cent., is highly recommended in tubercular laryngitis. **Resorcin**, a strong solution locally, very beneficial in tuberculous and other ulcerations of the larynx (Tymowski). **Guaiacum**, as lozenges, very useful in mucous laryngitis (A). **Althæa**, as pectoral lozenges to relieve laryngeal irritation (P). **Cubeb**, the berries chewed are very efficient in relaxation of the larynx following a cold or long speaking (Wa). **Cocaine**, a 20 per cent. solution of the Hydrochlorate by spray, mop, or brush, is very efficient in many laryngeal affections (James). **Benzoin**, in strumous laryngitis (Wa); in chronic, Benzoin on hot coals, or inhaled from boiling water, of great service (Tr). **Tannin**, in chronic catarrh and ulcerations, a solution (gr. x–xx to ℥iv) applied by hand-ball or steam atomizer (A). **Inhalations**, or spray, of the best agents very grateful (B); air loaded with vapors of Ammonium Muriate by inhaler, said to be used successfully (W); vapors from boiling Tar, Turpentine, etc., placed on hot water, or better by steam atomizer (Da C); Chloroform, Hops, Benzoin, etc., by atomization (Walker). **Insufflation**, substances to be in small quantity, mixed with bland powder (B). **Functional Rest** of voice often requisite, especially in phthisical and syphilitic laryngeal ulceration (A). **Chronic Laryngitis**, includes many disorders of the larynx, which of late years have been differentiated as—thickened vocal cords (chronic laryngitis proper), laryngeal ulcers, polypi, cysts, cauliflower growths, tubercular and syphilitic laryngitis, etc., in all the voice being similarly affected. Dysphagia, as a concomitant symptom is constantly indicative of tubercular laryngitis (Da C). [Compare COUGH, PHTHISIS, SYPHILIS, DYSPHAGIA.]

Laryngotomy.

Laryngotomy is more quickly and easily performed on the adult than tracheotomy, being farther from the lungs and less dangerous. It is usually directed to be performed by cutting longitudinally through the skin, then horizontally through the crico-thyroid membrane, which may be felt as a soft depression, an inch below the pomum Adami. In urgent cases, however, Professor Wood recommends a narrow-bladed knife to be passed horizontally through both skin and membrane at once, and then to enlarge the opening laterally to the required extent. The advantage of having a horizontal incision in the skin is the greater openness of the wound when the patient throws up his head under a sense of dyspnœa (D). In **Laryngo-Tracheotomy**, the deep incision is carried downwards from the crico-thyroid membrane, through the cricoid cartilage and one or two of the upper rings of the trachea (Cl).

Leprosy.

Anacardium Orientale (Oil of Cashew), has been much lauded; investigation established that much of its success was due to hygienic measures and use of fresh meat as food (P). **Arsenic**, with 5 or 6 times the quantity of black pepper, in esteem in India (Wa). **Sarsaparilla**, as tonic and alterative is valuable (P). **Gurjun** (Wood Oil), as ointment and emulsion, has been used with success in alleviating the disease, by Dr. Dougall, Port Blair, Andaman Islands; the ulcers of 24 lepers healed thereby. **Ferri Arsenas**, gr. $\frac{1}{8}$ daily, is used with success (Wa). **Mercury**, the Oint. of the Red Iodide, diluted 1 to 10, or gr. j of the salt to ʒv of Unguentum, gives very good results (Wa). **Diet**, nutritious food, cleanliness, bath, will do much to prevent the manifestations of the disease (R). **Chaulmoogra Oil,** [See page 177,] is credited with a few cures and many cases improved; the oil is mixed with Psoralea corylifolia as a liniment, and is also used internally (Wa). **Hoang Nan,** is considered of utility by a number of writers on leprosy, and is given in combination with Alum 1, Realgar 2 or 1, and the drug 2 parts, the whole being made into 3-grain pills, one pill daily being given at first and gradually increased (Pf). **Argenti Nitras,** is said to act as a tonic and alterative, and to control leprosy for a limited period (Pf). **Ichthyol,** used internally and externally, has given good results.

Leucocythæmia.

Alkaline Hypophosphites, have been used with more or less benefit (Wa). **Digitalis,** in young subjects (B). **Nitro-muriatic Bath,** should not be neglected, with tonics and nutrients (A). **Iron,** is of little value (B); large doses may do good in early stage, with careful diet, and **Ergot** to contract the spleen (Da C). **Phosphorus,** gr. $\frac{1}{50}$ increased to gr. $\frac{1}{30}$, has proved successful in several cases (Wa). **Arsenic,** in as full doses as can be borne, may be of service, though hitherto ineffectual (Gowers). **Galvanization** of the spleen causes improvement of the blood, increasing the number of its red corpuscles (Gowers); is curative in uncomplicated cases (B).

Leucorrhœa.

Hydrastis, the fluid extract, undiluted topically, quickly improves in uterine and vaginal leucorrhœa (B). **Pulsatilla,** 5-drop doses ter die for a few weeks; also a teasp. of the tinct. in a pint of cold or tepid water, as vaginal enema daily, when pain in the loins, depression of spirits, loss of appetite, etc. (P). **Silver Nitrate,** in solution locally, also tampon saturated with ʒj each of Alum and Bismuth, when leucorrhœa due to granular vaginitis (Parvin). **Balsams of Peru** and **Tolu,** internally (P). **Glycerin,** is largely employed for vaginal leucorrhœa, and for erosions and ulcerations of the cervix uteri (B); the best vehicle for other agents (E). **Glycozone,** applied on small rolls of lint, or absorbent cotton, after thorough washing of the vagina with solution of Hydrogen Dioxide, 1 to 4 of water, and repeated twice daily (Edson). **Borax,** ʒj to Oj of water, as vaginal wash for the leucorrhœa of pregnancy (Parvin). **Cimicifuga,** is said to be useful (P). **Copaiba,** has been used with success (P). **Cocculus Indicus** when sero-purulent discharge, pain in lumbar region (P). **Carbolic Acid,** diluted, as injection (B); for vaginal leucorrhœa (R). **Bismuth,** with mucilage, as injection; or with Cacao-butter as suppository (B). **Copper Sulphate,** in solution, as injection (R). **Tannic Acid,** in chronic cases serviceable as injection ʒss in ℥viij of claret wine (B); if os ulcerated, a suppository of Tannin and Cacao-butter to mouth of uterus (R). **Iodo-Tannin,** an excellent application, ʒj of Iodine to ℥j of Tannic Acid, a sufficient quantity to be packed dry around the cervix (B). **Alum and Borax,** make a useful injection in vaginal leucorrhœa (R). **Belladonna,** with Tannin as bolus where neuralgia or ulceration of os; when disease due to over-secretion of mucous glands about the os, and much pain present, inject Sodii Bicarbonas, ʒj; Tincturæ Belladonnæ, ℥ij; Aquæ Oj (R). **Potassium or Sodium Bicarbonate,** ʒj to Oj aquæ as injection, especially when discharge alkaline and copious (R). **Pareira, Uva Ursi,** are successfully used (P). **Sumbul,** recommended in atonic form (P). **Myrrh,** with Iron or Aloes, beneficial (P). **Ergot,** said to be useful in some cases (R). **Potassium Permanganate,** has no special advantage; is used in solution (gr. ij ad ℥j) (B). **Potassium Chlorate,** ʒj to Oj of water as injection in simple cases (Parvin). **Iron,** the Iodide, internally and externally has proven serviceable; the Mistura Ferri Composita, when anæmia and general debility (Wa): the styptic preparations locally (R). **Phosphates,** for the cachexia (B): Calcium Phosphate, gr. j–ij several times daily, of great value in checking profuse discharge (Wa). **Injections,** water at 60° F. to prevent recurrence (R); hot water injections are the best tonic to pelvic vessels, to relieve venous congestion; use with elevated hips (E). [Compare ENDO-METRITIS, UTERINE ULCERATION, VAGINITIS.]

Prescriptions.

℞. Aluminis, ... ʒj.
Zinci Sulph., ... ʒss.
Sodii Boratis, ... gr. iv.
Aq. Rosæ, ... ℥viij.
M. Sig.—Injection. (B.)

℞. Liq. Plumbi Subacet., . . ℥jss.
Ac. Carbolici, ... ʒss.
M. Sig.—One-fourth to be added to a pint of water and used as an injection.

Lichen.

Antipyrin, internally for the itching, is efficient. **Aconite,** sometimes useful (R). **Mercury,** Calomel and Mercuric Nitrate Oint. mixed (also Tar Oint. added), in patches of obstinate lichen (R). **Silver Nitrate,** the Nitrous Ether solution painted every day or two over patch (R). **Baths,** warm or of Sulphides (R); sponging with alkaline lotions, diluted Lead water, fluid extract of Grindelia well diluted, or solution of Copper Sulphate, gr. x to the ℥, in miliaria, or prickly heat (lichen tropicus); with dusting powders of Lycopodium, Zinc Oxide or Starch, singly or combined (Hughes). **Potassium Citrate,** or some other refrigerant diuretic, and light, unstimulating food (Da C). [Compare ECZEMA.]

Lithæmia.

Piperazin, by far the best agent to promote elimination of uric acid and urates, with which it forms the most soluble of all known uric acid compounds: relieves the pruritus of the uric diathesis. **Lithium Salts,** especially the Citrate, gr. xx thrice daily, is very efficient (Da C); the Carbonate invaluable (Wa); the Bromide, in solution of Potassium Citrate given after stomach digestion is completed, one of the very best agents (Aulde.) **Pichi,** of great value in lithæmia with cystitis (Wyman). **Arsenic,** in small doses, is also useful (Da C). **Nitric Acid,** 10 minim doses of the dilute acid in half-glass of water thrice daily, with an occasional dose of Pil. Rhei Compos. at bedtime, is the most efficient treatment for the class of patients who will not diet themselves (Hughes). **Purgatives,** especially alkaline mineral waters, to clear the portal system (Da C). **Sodium Phosphate,** in laxative doses, ʒj thrice daily, gives good results. **Alkalies,** in biliousness; also the continued use of alkaline waters rich in potassium salts, for solution of calculi (B). **Acids,** Hydrochloric often of great service; also Lactic, when faulty digestion and assimilation (Br). **Potassium Permanganate,** prevents calculi by converting uric acid into urea (B). **Buchu,** combined with an alkali, has been a beneficial remedy (P). **Colchicum,** ♏xv of the wine, twice or thrice daily; is very useful (Wa). **Chimaphila** is believed to check the secretion of lithic acid (P). **Aliment,** farinaceous vegetables and acid fruits are suitable (B). Alcohol in any form is poison to a lithæmic (Da C); succulent vegetables and fruits, occasional abstinence from animal food; high living, alcoholic liquors, and sedentary habits are injurious; milk diet, and frequent draughts of pure water are recommended. Removal to a locality where pure soft water can be procured, is often curative. [Compare CALCULI, DYSPEPSIA, GOUT.]

Prescriptions.

℞. Lithii Bromidi, ... ℥ss–j.
Liq. Potas. Citrat., . . . ℥iv.
Syrupi Simp., ... ℥ij.
M. Sig.—A teasp. in a wineglassful or more of water, 2 hours after each meal. Reduce after a week.

℞. Tinct. Belladon., ... ♏xviij.
Vini Colchici Rad., . . . ʒij.
Liq. Potas. Citrat., . q. s. *ad* ℥iv.
M. Sig.—A dessertsp. well diluted, every 3 hours.

℞. Potas. Nitratis, ... ʒj.
Ext. Pichi Fl., ... ℥j.
Elixir Simpl., ... ℥iij.
M. Sig.—A teasp. every 2 hours.

℞. Vini Colchici Rad., . . . ʒij.
Ext. Phytolaccæ Fl., ... ʒj.
Potas. Acetatis, ... ℥iij.
Aquæ, ... q. s. *ad* ℥vj.
M. Sig.—A tablesp. four times daily.

Locomotor Ataxia.

Antipyrin or **Phenacetin** for the lancinating pains; the former relieves them remarkably: the use of Morphine for the pains should be avoided as long as possible (Osler). **Belladonna** and **Ergot** are highly efficient (Brown-Séquard). **Silver Nitrate,** when motor disturbances are very marked; improved 1 in 20 (R); gives the best results in doses of gr. ¼ to gr. ½ thrice daily, withholding it after a few weeks to prevent argyria: the **Oxide** may be used instead of the nitrate, in half-grain doses (Da C). **Aurum,** is specially curative in all forms of sclerosis; the Bromide of Gold and Arsenic has been of special service in this form (E. A. Wood). **Potassium Iodide,** Corrosive Sublimate, or Gold and Sodium Chloride, all in full doses, often retard the progress of the disease (Da C). **Physostigma** has proved beneficial (R). **Phosphorus,** useful, but may not cure (B). **Hyoscyamine,** ameliorative, gr. $\frac{1}{32}$ gradually to gr. $\frac{1}{15}$ (B). **Electricity,** galvanic, relieves pain; faradic stops wasting of muscles (B); in stage of irritation the constant current (ascending) through spinal column (R). **Water,** one of the most efficient agents; friction with a cloth dipped in water of 60–65° F., a cold compress to head; 4–8 minute bath of 70-75° gradually lowered to 60°, then shower-bath frictions (R). **Rest,** as complete as possible, must be insisted on; with good, nutritious diet, milk being desirable (Da C). **Pilocarpine,** produces general improvement if given in the incipiency, gr. j to ℥j of water, of which ♏xxx twice daily (B). **Strychnine,** gr. $\frac{1}{60}$ in ʒj of Syr. Hypophosphitum, thrice daily, when the system is saturated with silver (Da C). **Suspension** daily, by head, has seemed to give relief to pain and improve condition: is known as Charcot's treatment, but discovered by Matchoukowsky, of Odessa, and carried out systematically by Hessing, of Pesth, before Charcot took it up: is now abandoned. **Morphine,** sooner or later becomes necessary for the lancinating pains. In one case, personally known to the author, which had been treated ineffectually by every known method, including suspension by Charcot himself, and was rapidly progressive, the abandonment of the hypodermic syringe for Morphine by mouth, gr. xv daily in divided doses, has seemed to result in complete cessation of progress, which has now lasted over four years. The patient is free from pain, eats and sleeps well, and attends to business, getting around by aid of a stick and some slight assistance from friends when crossing a crowded street.

Lumbago.

Cimicifuga, said to be more effectual than any other remedy (R); has sometimes wonderful success; no indications can be given for it; ʒss–ij of fluid extract (B); curative (P). **Rhus Toxicodendron,** in subacute muscular or tendinous rheumatism, worse at night; completely relieves some cases (Pf). **Veratrum Viride,** the tincture useful (R). **Aconite** in ¼ ♏ doses of tincture every two hours, with Linim. Aconiti locally (Wa). **Iodides,** if referable to syphilis, mercury, copper, tin, or lead poisoning (B). **Ammonium Muriate,** is very efficient in myalgic lumbago, gr. xx thrice daily for 2 days or until signs of congestion of the nasal mucous membrane appear,—then to be replaced by Quinine, gr. v, thrice daily for a week (Waugh). **Antipyrin,** gr. vij, hypodermically, completely banished it in a very bad case at the Hôtel Dieu, Paris. **Morphine,** hypodermically to relieve pain (R); gr. ⅙ with Atropine gr. $\frac{1}{80}$, hypodermically, will frequently cure lumbago in two or three hours (Da C). **Capsicum,** a strong infusion applied on lint, and covered with oiled silk, very efficient in recent lumbago (R); a Capsicum plaster is a very efficient application. **Potassium Nitrate,** in ten-grain doses hourly or every two hours, when urine scanty and high-colored (R). **Belladonna,** as plaster, very valuable for persistent lumbago remaining in a small spot (R). **Turpentine,** in doses of ♏xx–xxx (carefully, lest strangury and nephritis), of greatest value when the bowels regular and urine clear and abundant (Wa). **Ether Spray,** externally as freezing mixture (R). **Guarana,** xv to xl-gr. doses removed severe chronic (Rawson). **Chloroform Liniment,** affords relief (Wa). **Canada Balsam,** gr. v–xx, is useful, or **Burgundy Pitch,** as plaster (P). **Acupuncture,** occasionally gives instant relief (B); not when high fever (R). **Aquapuncture,** has been employed with extraordinary success (B). **Heat,** by hot douche to seat of pain (B); or by very hot poultices for three hours, then the skin covered with flannel and oiled silk; or a hot flat-iron (R). **Galvanism,** the constant current (B); is highly useful; faradization almost as successful as acupuncture (R). **Strapping** from the thigh upwards with layers of adhesive plaster which overlap each other; nothing is so instantaneously beneficial. **Diet,** should be generous and nutritive; Lemon-juice as a beverage. Absolute rest is of great importance. [Compare MYALGIA, RHEUMATISM.]

Prescriptions.

℞. Collodii,
Tinct. Iodi.,
Spt. Ammoniæ, . . . āā part. æq.
Sig.—Paint over the part with a camel's-hair brush. (*Burggraeve.*)

℞. Ammonii Chloridi, ... ʒj.
Ext. Cimicifugæ Fl.,
Syr. Simplicis, ... āā ℥j.
Aq. Laurocerasi, q. s. *ad* ℥vj.
M. Sig.—A dessertsp. every four hours.

Lung Diseases.

Aconite, is indicated in most acute congestions (P); is especially indicated in inflammatory states of respiratory organs (R); **Belladonna,** in ♏ doses of the tincture frequently, is of great benefit in pulmonary œdema, to retard exudation of serum and to counteract the failure of the heart (Smith). **Terebene,** is very valuable in many conditions. **Terpin Hydrate,** is still more efficient and more easily administered. [See under BRONCHITIS.] **Ammonium Acetate,** serviceable not only in bronchitis, but in the whole range of acute pulmonary complaints as occurring in children (Dessau). [See under BRONCHITIS, for formula.] **Veratrum Viride** renders important service in acute parenchymatous congestions (B); gr. ⅙ of resin in pill when temperature and pulse are high; it tends to induce prostration, collapse, etc. (A). **Blisters,** flying blisters to chest, and perhaps along pneumogastric nerves in hypostatic congestion (R). **Copaiba,** exercises a powerful influence over the pulmonary mucous membrane, and is beneficial in lung diseases generally, when attended with excessive secretion (Wa). **Jaborandi,** is serviceable for the attacks of breathlessness attendant on lung affections, but must be watched lest collapse ensue (Berkart). **Liquor Potassæ,** in doses of ♏x–xv added to an ordinary expectorant mixture, is often attended with good results in congestions of bronchi and lungs, chronic bronchitis, plastic bronchitis, etc. (Walshe). **Cimicifuga,** is a useful sedative in many irritative affections of the lungs and bronchial tubes, relieving cough, improving appetite, and ameliorating the general condition (Wood). **Croton Oil,** as liniment, is a highly useful counter-irritant in many chronic lung diseases, and even in the bronchitis of infancy (Park). **Cubeb,** in small and oft-repeated doses, is efficient in chronic bronchitis and other lung affections of old persons, checking the excessive secretion and gently stimulating the system (Wa). [Compare BRONCHITIS, EMPHYSEMA, HEMOPTYSIS, PHTHISIS, PLEURITIS, PLEURODYNIA, PNEUMONIA.]

Lungs, Gangrene of.

Creosote, by inhalation, to obviate the fetor (R). **Carbolic Acid** inhalations, are used with marked benefit (Wa). **Mineral Acids,** especially Nitro-hydrochloric, with **Quinine,** the main reliances in chronic pulmonary gangrene (A). **Stimulants,** as malt liquors, with general tonic treatment, are necessary (A). **Ammonium Carbonate,** one of the most reliable remedies; is best given in Decoctum Cinchonæ (Wa). **Eucalyptus,** the Oil with Alcohol, equal parts of each, of which ʒj as inhalation by steam atomization, is useful (Wa). **Turpentine,** the spirit on boiling water inhaled for fifteen minutes every two hours, successfully employed (Skoda). [Compare PNEUMONIA, PHTHISIS.]

Lupus.

Aristol, as an application, has given excellent results. **Arsenic,** in chronic cases, not of syphilitic origin (B); Arsenous Acid, as caustic (R); the best remedy in lupus of head and face (Wa); the Oleate of Arsenic, in ulcerating forms, constantly applied, will destroy cell-infiltration in a mild and comparatively painless manner; is also well employed in the tubercular variety (Wa). **Iodine,** useful, whether syphilitic or scrofulous; the tinct. or a glycerin solution (B); as tincture or liniment to edges and around (R). **Strontium Iodide,** has been used, with varied results, in lupus vulgaris. **Mercury,** as ointments in erythematous lupus, Calomel ointment in scrofulous and tubercular lupus of children (R); Calomel int. gr. j–ij increased to iv, will quickly check (Wa): Emplastrum Hydrargyri very efficient in lupus erythematodes and allied affections (Kohn). **Cod-liver Oil,** internally and locally (B). **Lead,** Liq. Plumbi, with one or two parts of Glycerin, applied warm after removal of crusts, in milder forms (R). **Carbolic Acid,** as a mild escharotic (B). **Zinc Sulphate,** dried, as caustic, freely dusted over surface, and a poultice to remove slough (B). **Jequirity,** a most useful application (Shoemaker). **Sodium Ethylate** on absorbent cotton, is the best of all caustics, followed by the **Oleopalmitate of Bismuth,** as a soothing and astringent application (Shoemaker). **Chromic Acid,** an efficient local application, gr. c to ℥j aquæ destil. (B). **Phosphorus,** as substitute for Arsenic (B). **Silver Nitrate,** a weak solution gradually strengthened, in superficial forms (R). **Cauterization,** with the actual cautery at white heat, after scraping out as much as possible of the diseased parts, so as to destroy the lupus cell. Seek to replace the lesion by a cicatrix, to prevent relapse in situ, and the development of the disease elsewhere. Internal remedies only useful for the general health.

Prescriptions.

℞.	Iodi,	
	Potassii Iodidi, ... āā	℥ss.
	Glycerini, ...	ʒj.

M. Sig.—Locally in Lupus. (*McCall Anderson.*)

℞.	Ung. Arsenici Oleat., . . .	ʒij.
	Ung. Simplicis, ...	ʒj.

M. ft. unguentum. Sig.—Use constantly over the affected surface. If pain sets in Opium may be added. (*Shoemaker.*)

℞.	Hydrargyri Bromidi, . . .	ʒjss.
	Adipis, ...	ʒv.

M. ft. unguentum. Sig.—To cover the part affected, using Cod-liver Oil freely, and the following solution internally. In tubercular lupus of the face. (*Hardy.*)

℞.	Potassii Iodidi, ...	gr. lxxv.
	Sodii Chloridi, ...	℥ss.
	Aq. Destil., ...	℥viijss.

M. Sig.—Tablesp. before meals, night and morning. (*Hardy.*)

Lymphangeitis.

Belladonna, the extract softened with Glycerin, freely applied, is of great service; when pain is severe, a poultice may be applied over the extract for a few hours only (Wa). **Lead,** Liq. Plumbi Subacet. Dil., as an external application, constantly applied, to soothe and restrain the inflammation (Wa). **Iodine,**

in strong tincture, around glands, to prevent suppuration (Roberts). Quinine, or **Salicin**, with alcoholic stimulants freely, in septic cases (Roberts). [Compare BUBO.]

Malaria, Chronic.

Quinine is less curative than when the infection is recent, but in periodical affections depending on the malarial cachexia it is of specific value, large doses being required (B). **Salicylates**, of Quinine and Cinchonidine are especially effective in chronic malarial disease (B). **Arsenic** plays an important rôle in chronic malarial disease (B); diminishes splenic engorgement, and combined with Iron is rapidly curative of many affections due to the paludal miasm (Boudin); is a powerful prophylactic against malaria, and in chronic malarial poisoning, with frequent return of fever and neuralgia, the continued use of Arsenic is of great benefit (Fayrer). **Iron**, the Sulphate has decided antiperiodic power, and is particularly successful in anæmic subjects and in those with enlargement of the spleen (Wa); it improves the anæmia of chronic malaria, and should generally be combined with Arsenic (B). **Iron and Manganese Iodide**, the Syrup in doses of ♏xx–xxx, is a successful remedy for chronic malarial infection, and **Manganese Sulphate** gives excellent results in jaundice of malarial origin (B). **Cornus**, **Calumba**, and other bitters, are highly efficient, especially the first named, in chronic malarial poisoning, and in convalescence after malarial fever (B). **Carbolic Acid** and **Iodine** combined are of great value in chronic malarial infection; both are highly antiperiodic, and the latter is the best substitute for Quinine and the most active reducer of splenic enlargement (Gimwell). **Eucalyptus** is of high utility to reconstruct the damages in the organs of assimilation (B). **Baths**, the vapor-bath and Turkish baths are efficient aids to medicinal treatment in breaking up chronic cases, and may of themselves cure such by inducing profuse perspiration (Da C). [Compare INTERMITTENT FEVER, REMITTENT FEVER.]

Prescriptions.

℞. Cinchonidinæ Salicylat., . . ʒ ij.
Ac. Arsenosi, ... gr. j.
Ferri Sulph. Exsiccat., . . gr. xx.
M. ft. pulv. no. xx. Sig.—One in wafer thrice daily.

℞. Cornus,
Calumbæ,
Liriodendri,
Pruni Virgin., ... aa ℥ vj.
Eupatorii,
Capsici, ... aa ℥ iv.
Pulv. et misce. Sig.—A teasp. in cold or warm water, three or four times daily. A good tonic tincture may be made from the above combination. (B.)

℞. Quininæ Sulph., ... gr. xl.
Ferri Sulph. Exsic., . . . gr. xx.
Ac. Arsenosi, ... gr. j.
M. ft. pil. no. xx. Sig.—One pill thrice daily.

℞. Tinct. Iodi, ... ʒ ij.
Ac. Carbolici, ... ʒ j.
M. Sig.—Two or three drops three or four times a day, in water.

℞. Ac. Arsenosi, ... gr. j.
Mass. Ferri Carb., ... ʒ j.
M. ft. pil. no. xx. Sig.—One pill thrice daily.

Mania.

Stramonium, of value; allays irritation and induces tranquil sleep; in wild and furious delirium, but intermittent; also in nymphomania (P); many facts seem to confirm its reported value (Tr). **Daturine**, gr. $\frac{1}{100}$–$\frac{1}{60}$ hypodermically in acute mania, but is less useful than Atropine or Hyoscyamine (Wa). **Duboisine**, gr. $\frac{1}{32}$ hypodermically in acute mania (Gubler). **Belladonna** is useful, especially in monomania, with fixed hallucinations, though a large dose causes a temporary insanity (Tr); one of the very best remedies in all hyperæmic conditions of the brain (P). **Hyoscyamus**, in violent intermittent forms, to procure sleep and calm violent delirium (R); delirium with hallucinations but not congestion; milder and less inflammatory forms; also in hypochondriacal monomania (P). **Hyoscine**, finds its greatest and most useful application in the treatment of maniacal violence and noisiness, and is a drug for emergencies of this kind (Weatherly). [See under INSANITY.] **Veratrum Viride**, successfully combats the excitement in acute mania (B). **Camphor**, has been used successfully; its action is uncertain (P). **Opium**, and Tartar Emetic are satisfactory for many cases; also Morphine hypodermically to induce sleep (R); narcotic effect of doubtful utility; better in insanity with depression (P); will not produce narcotism in many such cases, even in 2-grain doses. **Cannabis Indica**, ʒj of tinct. with ʒj of Potassium Bromide, is recommended (R). **Bromides** are used in puerperal mania, that of pregnancy, nymphomania and other forms (R); the combined use of Potassium Bromide and Tinct. of Cannabis Indica, in equal parts, ʒj of each thrice daily for weeks and months, has proved very efficient in acute and periodical mania, senile mania, and other forms (Clouston). **Chloral**, as calmative, hypnotic, has induced mental improvement, gr. v–xx (B). **Coniine**, most suitable to acute mania, quiets muscular action; use in doses of ♏ss–iij, or the Hydrobromate hypodermically, beginning with gr. $\frac{1}{16}$; with Morphine conjointly injected, is very successful (R). **Digitalis**, ʒss–ʒj of tinct. valuable in acute and chronic mania, especially when complicated with general paresis and epilepsy (Maudsley).—Caution! watch the pulse for any marked intermittence (B); a very valuable palliative in acute mania (Van der Kolk). **Ergot**, large doses, ʒss–j of fluid extract, to reduce excitement, shorten attacks, widen intervals between them, and prevent exhaustion, hence is very useful in recurrent and epileptic forms, and in chronic mania with lucid intervals (Crichton Browne). **Iron**, as a restorative, is frequently used in chronic mania with benefit, the Tincture of the Chloride in 5–10 minim doses (B). **Gelsemium**, is more useful than Conium in mania with great motor excitement and wakefulness; large doses required, ♏xv–xx of tincture. **Croton Oil**, as a purgative, ♏¼–⅓ every hour, as revulsive in mania from cerebral congestion (R). **Cimicifuga**, is often efficiently used in cases of mania occurring during the puerperal or pregnant condition (R). **Galvanism**, of the head and cervical sympathetic, has produced distinct improvement (B). **Paraldehyde**, as a hypnotic, in doses of ʒss–j, is often decidedly useful (R): larger doses are necessary, an average one is ʒiss. **Cold Douche**, in maniacal delirium, the patient being in a warm bath during the application of the douche to the head (R). **Removal** from home, from sympathetic friends, and from surroundings connected with the origin of the malady, is a prime necessity to a cure. [Compare DELIRIUM, INSANITY, PUERPERAL MANIA.]

Mastitis.

Belladonna, Atropine locally (see LACTATION), or combined with Morphine and Chloral, when much pain (B); especially as liniment to check secretion of milk when inflammation is imminent (R); or when breasts are distended by milk (P): when inflammation has set in, continuous application of Belladonna for 24 hours often arrests it; it is also useful when an abscess has formed; fomentations useful in addition, but skin must be dried well before the Belladonna is rubbed in (R); ♏v–x of tinct. internally as well (P). **Camphor**, a saturated solution in Glycerin, locally, in mammary congestion threatening abscess (Wa). **Phytolacca**, has power to arrest inflammation of the mammæ and to prevent suppuration; the fluid extract in 10-minim doses internally, and the solid extract on a cloth to the inflamed breast (B). **Conium**, the extract in small doses several times a day, of striking benefit in mastitis and impending abscess of breast (Wa). **Calcium Sulphide**, internally in mammary abscess; occasionally increases pain (R). **Hyoscyamus**, as plaster, to relieve painful distention from milk (P). **Stramonium**, fresh leaves as cataplasm to discuss indurated milk (P). **Iodine**, tinct. and ointments to remove indurations of breasts after inflammation (B). **Mercury** and **Morphine**, the Oleate locally in mammary abscess (R). **Tobacco**, leaves as poultice in abscess (R). **Digitalis**, the infusion locally as fomentation in severe inflammation of the breasts, causes it to yield speedily (Fairbank). **Ammonium Chloride**, ʒj in Spt. Rosmarini Oj, as lotion on linen rags, kept constantly to the part, especially in induration after abscess has suppurated (Wa). **Tartar Emetic**, in small and frequent doses, given early, is beneficial (Wa). **Oil** frictions in first stage of inflammation of breasts, from circumference toward the nipple (L). **Rest**, by supporting mammæ with strips of plaster, and bandaging the arm to the side, to prevent motion (T). **Sponging**, with Alcohol (over proof) until part is cold; renewed if heat return. **Heat**, applied by a basin lined with flannel saturated with hot water, to relieve pain and prevent suppuration. [Compare ABSCESS, LACTATION].

Mastodynia.

Conium, has specific anodyne action on the mammæ and generative organs. **Cimicifuga**, relieves infra-mammary pains of uterine origin in spinsters. **Olive Oil**, 2 parts, to 1 of Tinct. Opii, may be used by gentle friction to painful breasts after parturition (Parvin). **Non-interference** in simple cases of enlargement and tenderness, which will spontaneously subside if let alone; in severe cases support by strips or bandage, if breast pendulous; Belladonna ointment or liniments; amputation of mamma has been necessary (T).

Measles.

Aconite, for febrile symptoms, and especially to arrest the catarrhal pneumonia (R); a valuable remedy (P); the best drug when fever is very high, ½-drop doses of the tincture every 2 hours (Da C). **Jaborandi**, with a hot bath, as diaphoretics, in cases of delayed eruption (Da C). **Asclepias**, an infusion or decoction freely as a diaphoretic, to promote the eruption (W). **Veratrum Viride**, has been employed (R). **Pulsatilla**, for the catarrhal ophthalmia, nasal and intestinal catarrh; ʒj–ij of tincture to ℥iv water as wash (P). **Ammonium Carbonate**, dissolved in a solution of the Acetate, is much vaunted; when feeble circulation, cyanosis, delirium, gr. v–x to ℥ss–℥j Liq. Ammonii Acetatis (B); gr. iij–vj or vij, every hour or two, in Cinnamon-water or milk; one of the reliable remedies (W). **Camphor**, the water with Liq. Ammon. Acetatis, excellent when cough and catarrh the most urgent symptoms (A). **Ipecacuanha**, for cough and catarrh, gr. j–ij every 4 or 6 hours (A). **Antimony**, preferred to Ipecac by some (A). **Quinine**, in small doses for the adynamia (gr. j–iij), or large (gr. xv) for hyperpyrexia, and catarrhal pneumonia, etc. (B). **Carbolic Acid**, has been employed in several hundred cases with decided advantage; most useful at early stage (Wa). **Cod-liver Oil** and **Iron**, to scrofulous children, a long course of such medication after convalescence (Da C). **Purgatives**, must be given with caution (R); the milder purging salts, as Magnesium Sulphate, to be preferred (A). **Mustard**, as bath on sudden retrocession of rash (R); often increases the fever without benefiting the pneumonia and other complications (A). **Water**, cold affusion at commencement; packing, especially when retrocedent (R); hot foot-baths for convulsions (A); tepid bath with cold douche to head, if cerebral symptoms are severe (Da C). **Oil Inunctions**, Cacao-butter very grateful, and reduces temperature; also in the roseola (B); hands and feet to be rubbed with a firm fat to remove heat and tightness produced by rash (R). **Aliment**, low diet and slops; no animal food during whole course (A). **Hygiene**, dark room, complete disuse of eyes, strict cleanliness (A). [For Sequelæ see BRONCHITIS, COUGH, OPHTHALMIA, OTORRHŒA, PNEUMONIA, etc.]

Prescriptions.

℞. Ac. Carbolici,
Ac. Acetici, ... āā ʒj–ʒiss.
Tinct. Opii Deod., . . . ʒj.
Spt. Chloroformi, ... ʒj.
Aquæ, ... q. s. *ad* ℥viij.
M. Sig.—A tablespoonful every 4 hours, until fever abates. (*Keith.*)

℞. Tinct. Tolutanæ, ... ʒij.
Syr. Senegæ, ... ℥ss.
Ac. Acetici, ... ℥jss.
Syr. Pruni Virg., . q. s. *ad* ℥iv.
M. Sig.—A teaspoonful as required for cough after convalescence.

Melancholia.

Aurum, gives excellent results, gr. $\frac{1}{20}$ to $\frac{1}{30}$ of the Chloride thrice daily, especially when cerebral anæmia coexists (B). **Bromides**, sometimes afford relief which no other agent will; no indications (B); Potassium Bromide for townspeople, especially women with unendurable despondency (R). **Cocaine**, a useful tonic, especially beneficial in nervous affections accompanied by depression (Br). **Cimicifuga**, in puerperal or uterine despondency, of singular value (P). **Ignatia**, has soothing effect in great mental depression (P). **Arsenic**, in melancholy of aged persons gives great comfort; best with small doses of Opium; Fowler's solution, gtt. ij; Tinctura Opii, gtt. iij–v, ter die (B). **Opium**, in stimulant doses of tincture, gives good effects (B); especially when paroxysms of acute anguish and despair, or when suicidal impulse (Wa): Morphine hypodermically is of great benefit in some persons who have a peculiar idiosyncrasy therefor (R). **Camphor** has been highly recommended (R). **Musk** and **Castoreum** are employed in melancholia with benefit (R). **Cannabis Indica**, sometimes relieves (B). **Phosphorus**, depression from overwork (R). **Chloral**, as hypnotic, has been followed by marked amelioration and cure (Wa). **Valerian**, in hysterical or suicidal melancholia, is often beneficial (Wa). **Caffeine** has been useful (B). **Iron**, as restorative, the Tincture of Chloride (B). **Water-cure**, shower-bath, 15–20 seconds, or warm-bath, 95° Fah. for 30 minutes; the shower or cold douche may be usefully employed in certain cases where reaction takes place after it (Wa). [Compare HYPOCHONDRIASIS, HYSTERIA, INSANITY.]

Meningitis, Cerebral.

Aconite, is as serviceable in this as in the other acute inflammations; during the stage of excitation, the tincture, gtt. ij with gtt. v of Deodorized Tincture of Opium, every 2 hours, gives admirable results (B). **Belladonna**, in all hyperæmic conditions of brain and spinal cord one of the very best remedies, especially during the period of excitement (P). **Hyoscyamus**, valuable in subacute form (P); for nervous irritability during convalescence (A). **Gelsemium**, extremely useful; ♏v of fluid extract every 2 hours (B). **Mercury**, as ointment gives good results in children (A); Calomel in small, frequent doses, so as to bring the system under it quickly, a most valuable remedy apart from its purgative effects (Wa). **Potassium Iodide**, has cured (Niemeyer); especially valuable in the tubercular form (B). **Ergot**, the fluid extract in ʒss doses, with ʒss of Potassium Bromide, every 4 hours, to diminish the vascular excitement (B). **Potassium Bromide**, in the convulsions following simple meningitis (R). **Opium**, in small doses; by clinical evidence proved to be the best treatment, especially for acute stage before exudation, or during the stage of excitation (B): when collapse, may sustain powers of life; with Tartar Emetic has proved most beneficial, but should be used with great caution, as it may do great harm (Wa). **Bryonia**, exceedingly valuable for serous inflammations in stage of effusion (P). **Pulsatilla**, valuable in the acute form (B). **Purgatives**, as soon as possible, unless exhaustion; Calomel and Jalap the most active and searching (A); Croton Oil as a derivative and revulsive; also locally to the shaven scalp, productive of the best results in tubercular meningitis (Wa). **Venesection**, or arteriotomy (temporal artery) gives good results (B); when high cerebral excitement and vascular action (A). **Blisters**, on nape of neck if coma, after active symptoms are subdued (A). **Water**, cold water for hyperpyrexia (C); pounded ice in bag or bladder, as a cap to the head (R). [Compare HYDROCEPHALUS.]

Meningitis, Cerebro-Spinal.

Opium, no remedy so effective in small doses; its utility ends when effusion, stupor, and coma ensue (B); large doses (Valleix), gr. j every hour in very severe cases (S); has been used in France and Germany with much success

(Tr); is the best remedy of all, gr. j every hour for 4 days; even such doses will not narcotize (Da C). **Aconite**, useful combined with Opium (B); affects the cranio-spinal axis from 3d nerve to phrenics, the region where this disease is most manifest (Harley). **Gelsemium**, extremely valuable, ♏v of fluid extract every 2 hours, to maintain constant physiological effect (B); is efficient for the delirium. **Belladonna**, in all hyperæmic conditions of brain and spinal cord, especially during stage of excitement (P). **Iron**, the Tincture of the Chloride, in 20–30 minim doses, every two hours, suggested by the similarity of the disease to erysipelas, has made many successful cures without leaving any sequelæ (Klapp). **Bromides** to guard the Opium and enable the latter to be pushed, 20-grain doses every 4 hours (Da C). **Hydrocyanic Acid**, dilute, ♏j–ij, with gr. iij–v of Sodium Bicarbonate, every 3 or 4 hours, for severe vomiting (Delafield). **Quinine** in large doses at the commencement (B); has been exhaustively tried in this disease and failed (Da C). **Potassium Iodide** for the sequelæ, a long course of Iodides during convalescence is the best treatment (Da C). **Cold** to the spine, the most satisfactory treatment (Radcliffe); to head and upper spine for 5 minutes only at a time, for the headache and tetanic symptoms (Da C). **Venesection**, or arteriotomy (temporal artery), probably of service, but cautiously (B); leeches at back of neck and on temples, to relieve the terrible headache, if patient is strong and vigorous (Da C). **Digitalis**, in early stage (Rummel). **Ergot**, one of the best remedies (B). **Turpentine**, enema, as derivative (B). **Stimulants**, in small quantities (A). **Counter-irritation**, by actual cautery freely applied to back, alleviates pain (A). **Water**, cold baths or wet pack for hyperpyrexia; warm bath in uræmia (B); hot-water bottles or sand-bags to trunk and extremities to keep up warmth; bath of 102–106° for short time only, then wrapped in blankets (A). **Heat** to the body, except the head and neck (Da C). **Aliment**, nutritious and suitable food at short intervals, day and night (A); tonics with fresh air and good diet during convalescence (A). **Ventilation**, of dwellings, the best sanitary precaution when the disease is epidemic (Simon).

Prescriptions.

℞. Morphinæ Sulph., ... gr. ss.
Ac. Sulphurici Aromat., . ʒj.
Tinct. Cinchonæ Co., *ad* ℥vj.
M. Sig.—Tablesp. every 2 hours, for a boy of 12 years old. (*Meigs & Pepper.*)

℞. Potass. Iodidi, ... ʒiv.
Tinct. Gentian. Comp.,
Syr. Sarsæ Co., ... āā ℥ij.
M. Sig.—Teasp. thrice daily, to promote absorption during convalescence.

Meningitis, Spinal.

Aconite, is very useful (B); with Ergot and Opium impression to reduce the amount of blood in the vessels of the cord (Da C). **Potassium Iodide**, in the chronic form, with the Bichloride of Mercury when a specific history present (Hammond). **Belladonna**, strongly to be relied on, even when brought on by external violence (P). **Bryonia**, in serous inflammations when effusion, is extremely valuable (P). **Purging**, by Magnesium Sulphate, combined with Tinct. Hyoscyami (A). **Quinine**, when paralysis occurs, in 3-grain doses thrice daily, with ¼-grain doses of Extract. Belladonnæ, or 20–30-grain doses of Potassium Iodide, and flying blisters along the spine (Da C). **Opium**, in some form, must be used for pain (Bastian). **Mercury**, gr. $\frac{1}{16}$ of the Bichloride, with increasing doses of Potassium Iodide, to promote absorption of inflammatory products, if the inflammation subsides (Bastian); a mercurial impression often benefits the paralysis (Da C). **Cold**, by ice to spine is deemed necessary, and no doubt alleviates the pain, though heat would be a more rational application for the inflammation (Bastian).

Menorrhagia.

Opium, has specific action in reducing the uterine circulation, should be pushed, even to inducing habit, in severe cases (Lutaud). **Ipecacuanha**, in full emetic doses (Wa); is excellent (B); Ergot is better (P). **Savine**, enlarged, relaxed, and passively congested uterus (B); in 5–10 drop doses of tinct. in water every half-hour to three hours, has proved useful (P); when due to want of tone in uterus (R). **Ergot**, large spongy uterus; Bromides better (B); Ergotin gr. j or ij in Glycerin and water, undoubtedly efficacious as hypodermic injection (P); in all forms (R); minim doses of the fluid extract are very beneficial (Smith). **Hydrastinine**, a powerful uterine vaso-constrictor; very successfully used in grain doses of the Hydrochlorate in 10 per cent. solution hypodermically, for a few days before the expected term. **Hamamelis**, has decided influence on venous system; of high repute (Pf). **Arsenic and Iron**, when from anæmia (B). **Cannabis Indica**, often successful (R); gtt. v–x of tinct., thrice daily, productive of extraordinary success (Wa); has a stimulant action on the uterine muscular fibre, and may be given in combination with Ergot (B). **Iron**, when dependent on anæmia (B). **Rue**, low vascular tonus; should never be used in the pregnant state (B). **Erigeron**, the Oil, in 10-drop doses, is efficient (Wa). **Gossypium**, a favorite uterine hemostatic in many hospitals, in 30-minim doses of the fluid extract every four hours (Parvin). **Quinine**, has been recommended (R); after Ergot it is the very best agent, in 6-grain doses every 3 hours (Parvin). **Digitalis**, very useful, especially when from heart disease, in plethoric subjects (R); ℥j–jss of infusion as dose will arrest menorrhagia when unconnected with any disease (P, R). **Aloes**, debilitated and relaxed subjects, with Iron (B). **Cimicifuga**, passive, coagulated and dark (P); for accompanying headache (R). **Gallic Acid**, is very efficient (R). **Potassium Chlorate or Bromide**, in doses of gr. xv thrice daily, combined with Ergot, has an almost infallible influence over uterine hemorrhage, unless caused by cancer, polypi, adherent placenta, or other similar affections (Tait). **Bromides**, usually arrest promptly (B); that of Potassium most useful in young women if loss occurs at natural period only; commence the Bromide a week before and discontinue when discharge ceases till a week before the next term; if loss occurs every two or three weeks give Bromides continuously in 10-grain doses, but more when organic changes in womb (R, Wa). **Ammonium Chloride**, for headaches (R). **Calcium Phosphate**, in anæmia from excessive menstruation (R). **Magnesium Sulphate**, very small doses with a little dilute Sulphuric Acid and syrup, is exceedingly useful (Wa). **Cinnamon**, the Oil, in drachm doses (R). **Water**, hot water bag to lower dorsal and lumbar vertebræ (R); cold sitz-bag, feet in warm water, especially valuable. 60°-65° Fahr. for 5–15 minutes, patient then quickly dried and put to bed. [Compare METRORRHAGIA.]

Prescriptions.

℞. Ext. Ipecac. Fl., ... ʒij.
Ext. Ergotæ Fl., ... ʒiv.
Ext. Digitalis Fl., ... ʒij.
M. Sig.—A half teasp. to a teasp. as required until emesis. (B.)

℞. Ext. Ergotæ (Squibb's), . gr. xij.
Ext. Opii, ... gr. vj.
M. et div. in pil. no. xij.
Sig.—One pill every hour, in profuse menstruation of atonic type.

Menstrual Disorders.

Aconite, gtt. j of tinct. every half-hour to hour promptly restores discharge when sudden suppression from chill (P, B, R, Wa); as emmenagogue (Tr). **Pulsatilla**, often of the greatest value when menses scanty or delayed, or suppressed by fright or chill (P, B). **Ignatia**, in suppression of hysteria (P). **Savine**, a powerful uterine tonic; as emmenagogue certain, powerful, safe (P). **Ferrum**, in anæmic subjects (B). **Aloes**, as emmenagogue [vide AMENORRHŒA]. **Cocculus Indicus**, for irregular menstruation with colicky pains and scanty discharge; should be given for a few days prior to and during period (P); ♏ij–iij of a saturated tincture thrice daily. **Opium**, in suppression from violent mental emotions, a valuable remedy (Wa): in many menstrual disorders Opium proves invaluable, but must be cautiously administered lest the habit be formed. **Cimicifuga**, relieves heat and pains in the head, flushings in the face, pains in back and limbs, etc., when occurring as the result of menstrual perversion (Wa). [Compare AMENORRHŒA, DYSMENORRHŒA, MENORRHAGIA, CLIMACTERIC DISORDERS.]

Mentagra.

Mercury, the Oleate, or the Bichloride, gr. ij to ℥j water, applied as lotion after each epilation (R); Citrine oint. extensively employed (Wa). **Sulphurous Acid**, with an equal part of Glycerin, is an efficient application (Jenner). **Arsenic** has a more or less powerful influence, used internally in doses of ♏v of Liquor Arsenicalis thrice daily (Wa); the Oleate of Arsenic is an efficient local application. **Sulphur Iodide**, as ointment (ʒj to ℥jss), is efficient, with Donovan's solution internally (Sir E. Wilson). **Copper Sulphate**, as lotion, ʒj to ℥xvj of water, with ℥ss of Zinc Sulphate, and ℥jss of Aqua Laurocerasi (B).

Metritis, Acute.

Opium, locally, in suppositories or enema is more effectual than if administered internally (Wa). **Aconite**, is invaluable in early stage of simple inflammatory fevers (P). [Compare PUERPERAL FEVER.] **Heat**, to the feet, and by large poultice to the abdomen; also hot water vaginal injection literally for hours, if possible; repeated at short intervals, from a Davidson syringe; the only means of aborting an attack of cellulitis (E), which is the condition generally present in cases which are usually supposed to be ones of acute metritis (Playfair). **Turpentine**, as hot epithems; few measures are more generally serviceable (Wa). **Linseed Poultices**, produce great relief to pain and favorably affect the course of the disease (Duncan). **Leeches**, to the hypogastric region, may be required in patients of full habit. [Compare PUERPERAL FEVER, PUERPERAL METRITIS.]

Metrorrhagia.

Ipecacuanha, possesses considerable energy in arresting flooding (P); in full emetic doses, gr. xx in evening, followed by an acidulated draught in the morning (Wa). **Hamamelis**, when persistent oozing (R). **Ergot**, the most valuable remedy in full doses; repeated every hour or so (R, P). [See MENORRHAGIA for formula.] **Savine**, 5 to 10-drop doses of tincture in cold water every ½ hour to 3 hours (P). **Iron**, styptic preparations as injections (B). [See HEMORRHAGE, POST-PARTUM.] **Opium**, has specific action on the uterine circulation (see *ante*, page 315), and should be given freely in intractable cases of metrorrhagia from uterine fibroids or cancer, in which the establishment of the opium-habit is often advisable (Lutaud). **Hydrastinine**, a powerful uterine vaso-constrictor; successfully employed in grain doses of the Hydrochlorate in 10 per cent. solution hypodermically. **Atropine**, gr. $\frac{1}{100}$ to $\frac{1}{50}$ hypodermically, in profuse metrorrhagia after abortion or of obscure origin; may require as many as four injections to cause cessation of the flow (Squibb). **Cannabis Indica**, often arrests, especially when at climacteric; tincture gtt. v–xx ter die (P); has had extraordinary success in number and rapidity of cures (Wa). **Sulphuric Acid**, sometimes very effective, especially when due to fibroid or polypus; Ac. Sulphurici Dil., gtt. v–xx, well diluted (B); long extensively prescribed (Wa). **Cinnamon**, is used with good effect (P); has specific action on the uterus (T). **Digitalis**, in plethoric subjects; the infusion best, a tablesp. bis die (P); the effect is prompt and decided (Wa). **Magnesium Sulphate**, often succeeds (B). **Senegin**, in 2-grain doses, is successfully employed (P). [Compare Amenorrhœa.] **Ice**, to abdomen, or within the uterus (B); Ice in every way the first thing to try (Wa). **Rest**, absolutely necessary. Dry cupping over sacrum is found useful (R). [Compare Menorrhagia, Uterine Tumors.]

Prescription.

℞. Ext. Ergotæ Fl., ... ℥ss.
Ext. Senec. Aur. Fl., . . .
Ext. Viburn. Prunif. Fl., aa ℥j.
Ol. Myristicæ, ... ♏xx.
Syr. Simplicis, . q. s. . *ad* ℥vj.

M. Sig.—A dessertsp. every ¼ hour until relieved, then reduce dose. Keep the head low, and apply cold over hypogastrium.

Miliary Fever.

Aconite, for the hyperpyrexia (R, P). **Cooling Drinks**, purgatives and antiphlogistics, in mild cases; malignant ones sometimes occur, and are dangerous (A). **Lime-water** applied by sponging, is very useful; or a lotion of Zinc Oxide suspended in Lime-water, gr. xl to ℥j, painted on the affected parts of the skin, and permitted to dry thereon (E. Wilson).

Muscæ Volitantes.

Potassium Iodide, very effectual in curing muscæ depending upon hepatic derangement (Wa). **Valerian**, often found curative (Wa). **Muscæ Volitantes** are due to shadows cast on the retina by fibrillæ floating in the vitreous body, and are most visible to myopic persons; they do not merit attention unless very abundant, or steadily increasing (C). Rest of the eye necessary. Neutral-tint glasses may be worn to render the muscæ less visible, if troublesome.

Myalgia.

Arnica, the best agent for contused muscular fibre; also for shake, concussion, shock; ♏v–x every 2 or 3 hours in water (P); a few drops of tincture internally, removes stiffness, after packing with cold, wet sheet (R). **Cimicifuga**, often succeeds wonderfully, as often fails; no indications for its use (B); general bruised sensation (R). **Ammonium Chloride**, in 10 to 20-grain doses, the most efficient remedy (Anstie); is effective (R). **Veratrine**, the ointment externally may control (B). **Belladonna**, as liniment, is often successful (R). **Gelsemium**, frequently cures, but large doses are necessary, ♏v–xx of the fluid extract every 3 hours (B). **Coca**, to relieve the sense of fatigue (P). **Opium**, by frictions or poultices (R). **Iodine**, ointment for pain and tender muscles of the chest, when skin may be pinched without pain (R). **Xanthoxylum**, externally and internally, has a deserved reputation (B). **Chloroform Liniment**, with friction, often affords great relief (Wa). **Firing**, sometimes very beneficial (B). **Packing**, with dripping wet sheet (R). **Counter-irritation**, by firing, aquapuncture, acupuncture (B). **Electricity**, the constant current (B). **Baths**, Turkish, in aching muscles, from over-exertion (R). **Poultices**, very hot, followed by applications of lint and oilskin (R). **Rest**, is the remedy, of course (Wa). Rest and support to weak muscles important till they regain their tone; especially in painful muscular affections following prolonged or excessive exertion, or in the soreness or stiffness which occur during convalescence from any long illness, or accompanying general debility, and generally better after repose, but increase with fatigue. [Compare Pleurodynia, Lumbago.]

Myelitis.

Belladonna, is decidedly effective, especially when disease is brought on by external violence (P). **Ergot**, most successful; large doses are necessary (B). **Electricity**, in chronic, not in recent form (B). **Silver Nitrate**, in chronic inflammations of the cord, one of the few remedies which are ever of service; gr. ¼–½ (W). **Phosphorus**, of marked benefit in myelitic paraplegia from excessive venery (W). **Water-cure**, Ice-bag to spine, feet in hot water; or better, hot douche to spine (B). **Cold**, externally, by Ice-bags, along the spine, with cupping or leeching if much localized pain or tenderness; spoon diet and a sparing amount of stimulants, also copious warm enemata to relieve the bowels and act as derivatives. Little, if anything, is to be done with mere drugs. Posture should be prone, or on side; absolute rest (Bastian). [Compare MENINGITIS, SPINAL.]

Myopia.

Atropine, by daily instillation, systemically, for the purpose of sacrificing either the convergence or the accommodation, in cases where failure of the internal recti occurs, the disability assuming the form of muscular asthenopia (C). **Glasses**, properly adjusted, should be worn from the commencement.

Nævus.

Ferrum Perchloride, injected, is effectual; but dangerous when applied thus to nævi about the head (Wa). **Creosote**, pencilled over twice a day, may remove nævi (Wa). **Chromic Acid**, as escharotic, or local application, gr. c ad ℥j aquæ destil. (B). **Electrolysis**, or galvano-cautery, to remove nævi (B); 40 cases so treated; the process is certain and safe, leaving a faint cicatrix and no after-pain (Knott); in my hands has answered well during ten years' use in these cases (Marshall). **Nitric Acid**, strong, as escharotic for small superficial nævi, followed by Oleum Olivæ (B). **Zinc Chloride, Iodide** and **Nitrate**, locally, especially the first named (R). **Setons**, threads passed across the growth in various directions, to produce suppuration; when pus appears the threads should be removed. **Sodium Ethylate**, prepared by adding the metal Sodium, piece by piece, to absolute alcohol in a wide-mouthed bottle; the crystalline substance found deposited after effervescence ceases is an excellent caustic for nævi; painted over them it causes a rapid eschar, and usually gives but little pain (Richardson). **Mercury**, the Acid Nitrate an excellent caustic for removing moles from the face (Thomas).

Nails, Ingrowing.

Liquor Potassæ, a solution (ʒij to ℥j) on cotton-wool in ingrowing toenail, to margin of nail at ulcerated surface, to soften the nail (B). **Glycerin**, or **Silver Nitrate**, on a fold of lint, to the ulcerated surface (C). **Lead Carbonate**, a piece softened between the fingers, and applied as plaster beneath the fungous cushion, cures in a few days (Tr). **Paring the nail**, after softening in warm water, and cutting a V-shaped incision in centre of nail; the ingrowing portion should not be cut.

Nasal Affections.

Ammonia, by inhalation, in pain and inflammations of nose and frontal bones (R). **Potassium Iodide**, large doses (gr. xxx–lxxv daily), valuable in syphilitic affections of the nose (Wa). **Glycerite of Tannin**, to excoriations of inside of nose, after measles, scarlatina, etc.; also for impetiginous eruptions of inside, most severe where hair grows; epilation sometimes needful; also in discharge of greenish, black, stinking mucus (R). **Glycerite of Starch**, or **Zinc Ointment**, applied often, a good supplementary application (R). **Hydrastis,** in chronic catarrhal conditions and nasal ulcers, used internally and externally, with great benefit (P). **Pulsatilla** may be employed both internally and externally in nasal inflammations (P), and in acute inflammation of nose (B). **Cod-liver Oil** for chronic discharge (R). **Injections,** by nasal douche, are used with benefit in catarrhal states (Wa). **Zinc Chloride,** gr. ij to the ℥, or the Sulpho-carbolate, gr. v to the ℥, as solutions locally by cotton-wrapped probe to diminish sensibility of the nasal mucous membrane (Sajous). **Cocaine,** has many applications in treatment of nasal affections; a 4 per cent. solution by mop or spray will empty the engorged venous sinuses, and is very useful in acute catarrh, hay fever, etc. also for posterior and anterior rhinoscopy (R). [Compare Acne, Catarrh, Epistaxis, Hay Fever, Influenza, Ozæna, Polypus, Sneezing.]

Nausea.

Ipecacuanha, has no rival in sickness of pregnancy, scarcely less useful in that of chronic alcoholism; very small doses, gr. $\frac{1}{32}$ or ♏j of wine (P). **Pulsatilla,** in dyspeptic nausea, with coated tongue, flatulence, sick-headache (P). **Cocculus Indicus,** in cephalic nausea, violent but ineffectual efforts at vomiting (P). **Calumba,** in nausea of languid stomach with flatulence, has considerable reputation (P). **Cinnamon** or **Cloves,** will check nausea (P). **Nutmeg,** the simple powder in wine (P). **Pimenta, Pepper, Peppermint,** relieve (P). **Tartaric Acid,** as effervescing draught, with a few drops of Tinct. Opii, Tinct. Calumbæ, or Dilute Hydrocyanic Acid added, when from morbid gastric irritation (Wa). **Cold Compress** or **Ice-bag,** over the stomach very useful. **Bismuth Subnitrate,** or the Liquor Bismuthi, when the salt in substance disagrees, is a remedy of established value in nausea and vomiting arising from gastric disorders; may be combined with Hydrocyanic Acid (Wa). [Compare Vomiting, Vomiting of Pregnancy, Seasickness.]

Necrosis.

Sarsaparilla, a very useful medicine in diseases of the bones (P). **Rest,** in a "Salter's swing," with poultices, water-dressing, or stimulating lotions, to aid work of repair (Cl, Hilton). **Tonics,** nutritious food, baths, good hygiene, all are necessary adjuncts to local treatment (Andrews). **Acid Solutions,** of no use as solvents, may be employed with benefit for detergent and alterative effects to expedite the sloughing and restorative processes (Gross). **Operation** to remove sequestrum is generally necessary; or resection of the devitalized bone, the latter in young subjects greatly exhausted, where delay would endanger life (Gross). **Potassa cum Calce** introduced into fistulæ, to convert them into large openings, permitting the removal of diseased bone (Kirkpatrick). [Compare Caries, Bone Diseases, Syphilis, Scrofulosis.]

Nervous Affections.

Nux Vomica, in one-drop doses of the tincture every 5 minutes, is promptly efficient in relieving many affections of reflex neurotic origin, as cough, dyspnœa, syncope, palpitation, flatulent dyspepsia, eructations, etc., especially when occurring in hysterical subjects (Macfarlan). **Arsenic,** of especial value in nervous affections resulting from malaria, in which large doses are required; ♏x of Liq. Arsenicalis, increased to ♏xxx thrice daily (Wa). **Asafœtida,** is a remedy of much value in nervous affections connected with uterine derangement, also in dyspeptic hypochondriasis and other nervous affections; may be combined with bitter tonics and mild aperients (Wa). **Potassium Bromide,** takes precedence in epilepsy, epileptiform convulsions, hysterical convulsions and spasms, tetanus, etc.; is of great value in chorea, insanity, acute mania, insomnia, delirium tremens, some forms of neuralgia, and the numerous symptoms of vaso-motor disturbance, such as—numbness, coldness, deadness, pricking sensations, indefinable but distressing sensations in abdomen, hypogastrium or epigastrium; feelings similar to rigors, with anxiety, palpitation or fluttering of the heart,—all due to interference with the local circulation (Reynolds). **Valerian** and **Valerianates**, are thought to exercise some special influence over nervous affections, especially Zinc Valerianate, in half-grain to grain doses in pill, or the Ammoniated Tincture of Valerian, from which every good that can be expected from the valerianates will be more certainly obtained (W). **Sumbul**, acts as a nervous stimulant, and is especially efficacious in neurotic migraine, also in hysteria and the obscure paralytic affections associated therewith (Wa). **Caffeine**, is of signal value in neuralgia, hemicrania and other nervous affections (Shafter); grain-doses in solution hypodermically, afford great relief in dorso-intercostal neuralgia attending shingles, insomnia, etc. (Anstie). **Cocaine** is a powerful nerve stimulant, destroying the sense of fatigue, and often evincing marked analgesic power in neuralgiæ; is effective in melancholia, hypochondriasis, etc., as well as locally in nerve pain over a limited area; it acts as an excitant upon the central nervous system (R). **Opium**, is a remedy of marked value in insanity, melancholia, mania, and all nervous affections accompanied by pain (W); gives general repose to both body and mind, is of decided value in diabetes, and produces marked improvement in melancholia and despondency (R). **Lupulin**, is peculiarly useful in nervous affections when Opium cannot be tolerated, especially in chronic hysteria attended with morbid vigilance, 10-grain doses every 6 hours afford great relief, without causing any unpleasant symptoms (Eberle). **Santonin**, in convulsions, epileptiform seizures, and affections regarded as choreic, etc., the result of reflex irritation from worms (Wa). **Phosphorus**, of occasional utility in affections of the nervous system induced by mental exertion or over-excitement; the danger from its use is its liability to produce fatty degeneration of the internal organs (Wa). **Silver Phosphate** is regarded as of special value in myelitis with disturbance of bladder and rectum, and in sclerosis of the nervous substance (Wa). **Silver Nitrate**, the only remedy which has done good in progressive locomotor ataxia; gr. $\frac{1}{10}$–$\frac{1}{4}$ two or three times daily, with Sodium Hypophosphite, both to be discontinued when blue line appears on gums (Althaus). **Cold Shower Baths**, are often beneficial in nervous diseases unconnected with disease of the brain. [Compare HYSTERIA, MELANCHOLIA, MANIA, DIABETES, LOCOMOTOR ATAXIA, HEMICRANIA, NEURALGIA, NEURITIS, NEURASTHENIA, NERVOUSNESS, INSOMNIA, HEMIPLEGIA, PARALYSIS, P. AGITANS, SPINAL PARALYSIS, ETC.]

Nervous Exhaustion.

Ammonia, the Aromatic Spirit proves very serviceable; ʒss–j in water thrice daily (Wa). **Hypophosphites** of Lime or Sodium, or Iron, are actively tonic in cases of nervous depression and torpor, with occasional shooting pains (Wa). **Strychnine Acetate**, a remedy of great promise, when combined with a rigid system of diet, mental discipline, etc. (Marshall Hall). **Zinc Oxide**, often excellent as a tonic and sedative, in nervous irritability and depression from anxiety, over-study, etc. (Wa). **Phosphorus**, of occasional utility in nervous breakdown from over-study, etc. (Wa). **Caffeine**, gr. j or more in a cup of coffee, to relieve brain weariness and nervous exhaustion (Wa). **Cocaine**, in ½-grain doses proves serviceable in nervous exhaustion (R): danger of cocaine-habit if identity known to the patient.

Prescriptions.

℞. Strychninæ Acetatis, . . . gr. j.
Ac. Acetici Diluti, ... ♏xx.
Alcoholis, ... ʒij.
Aquæ Destill., ... ʒvj.
M. Sig.—Ten drops thrice daily.
(*Marshall Hall.*)

℞. Ac. Phosphorici Dil., . . . ℥j.
Elixir Calisayæ (U. S. Disp.), ℥vj.
Elix. Ammonii Valerian., . ℥ij.
Glycerini, ... ℥iij.
Vini Xerici, ... q. s. *ad* Oj.
M. Sig.—℥j thrice daily.

Nervousness.

Aconite, gtt. j of tinct. at bedtime, repeated if needful, for restlessness and "fidgets" of men as well as women (R). **Ignatia**, in small doses better than Morphine for mental excitement and nervous erethism (P); for the nervous exaltation of cinchonism (Pf). **Caffeine**, for restlessness due to great lowering of nervous power (P). **Chamomile**, lowers reflex excitability (P); minim doses of the tincture every 15 minutes an excellent sedative for children (Smith). **Resorcin**, produces quiet sleep in general nervous excitability. **Potassium Bromide**, especially for women who are despondent, irritable, and sleepless, from overwork, grief, worry, etc.; often connected with migraine (R); gr. ss–j of any Bromide every ¼ hour, is very efficient for the nervous disturbances of children (Smith). **Conium**, where a great deal of motor agitation, especially in the typhoid-like condition often resulting from mental overwork, with insomnia, exaggerated nervousness and delirium,—it acts charmingly in securing sleep, by removing the motor agitation; ♏x of a fluid extract of the unripe fruit, every ½ hour, carefully watched (Madigan). **Strychnine**, affords relief in functional irritability of the nervous system, manifested by restlessness and wandering neuralgic pains (B); especially useful as a tonic in nervousness from over-use of tobacco (H). **Valerian**, extremely useful as a sedative to reflex excitability, calms nervousness, does much good in fevers where restlessness, fidgets, anxiety, etc. (P). **Musk**, serviceable in nervous affections when from uterine derangement (Wa). **Opium**, calms the nervous system and gives general repose to both body and mind (R). **Sumbul**, often invaluable in restlessness of pregnancy; ♏xxx–xl of tinct. with a little Chloric Ether as draught (P). **Camphor**, a powerful subduer of reflex excitability (P). **Chloral**, where restlessness, debility (R). **Chloroform**, the Spirit internally (R). **Hop**, the hop-pillow is deserving of trial. **Lupulin**, peculiarly useful when Opium cannot be tolerated (Wa). **Water**, warm sponging to induce sleep and calm restlessness in convalescence; also, cold sponging (R). [Compare INSOMNIA, IRRITABILITY.]

Prescriptions.

℞. Strychninæ Sulphatis, . . gr. j.
Quininæ Sulphatis, . . . ʒj.
Tinct. Ferri Chloridi, . . ʒv.
Ac. Phosphor. Dil.,
Syrupi Limonis, ... āā ℥ij.
M. Sig.—A teasp. in water thrice daily.

℞. Potassii Bromidi, ... ℥j.
Ext. Guaranæ Fl., ... ℥jss.
Syr. Tolutani, ... ℥iij.
Aquæ, ... q. s. *ad* ℥vj.
M. Sig.—Teasp. to a dessertsp. three or four times daily. To relieve nervousness.

Neuralgia.

Aconite, when arterial excitement (B); in congestive neuralgias, and acrodynic, at extremities; has important rôle (P); as ointment or liniment, especially when fifth nerve affected; also in neuralgic headache (R); a remedy of great value (Wa); a perfect physiological remedy against neuralgia, especially those forms which are based on congestive or sub-inflammatory affections; but its action is often slow, so that Morphine must be given with it as a palliative. **Aconitine**, with Veratrine as an ointment locally, a good application (Da C); internally the best agent of all in essential neuralgia; should be combined with Quinine in intermitttent forms and those which resist quinine alone. [See formula below.] **Belladonna**, must be persisted in with full doses; gr. $\frac{1}{80}$ of Atropine, or gr. $\frac{1}{50}$ to $\frac{1}{80}$ hypodermically, in vicinity of nerve, has special utility in tic douloureux and sciatica; also in peri-uterine and dysmenorrhœal neuralgias (B); ♏j of solution of gr. j in ʒij of water hypodermically (P); for spinal irritation; intercostal neuralgia; the Liniment or Ointment of Atropine in facial (R); gramme 0.15 of the extract every hour till giddiness, then lessen doses, and continue for several days (Tr). **Veratrum Viride**, tincture, said to be very useful (R). Veratrine Ointment for facial and sciatica (R); the Oint. (gr. viij to ℥j) frequently of much benefit (P). **Quinine**, large doses, (gr. v–xx, in sherry), just before attack in periodical neuralgia, whether malarial or not; useful also, in small, frequently repeated doses, in other types, especially of supra-orbital nerve (P); has selective action upon supra-orbital form (Spender). **Arsenic**, cures by its influence on bodily nutrition; directly so in neuralgias of malarial origin, though inferior to Quinine (B); in various neuralgias, also in angina pectoris (R); the Bromide of Gold and Arsenic rendered good service in an obstinate case of trifacial neuralgia diagnosed as due to syphilis, after other treatment besides anti-syphilitic had failed (E. A. Wood). **Opium**, internally, or Morphine, hypodermically, in the vicinity of the affected nerve, the best treatment;—Caution! morphine-habit (B); gr. $\frac{1}{16}$ to ¼ often relieves and frequently cures after a few repetitions (P); no remedy promises more speedy and permanent relief than Morphine by subcutaneous injection in sciatica, lumbago, tic douloureux and other neuralgic affections (Wa). **Phenacetin**, **Antipyrin**, and **Acetanilid**, are used with great satisfaction as analgesics in many forms of neuralgia; of the three, the first named in doses of gr. x, is the safest and most efficient. **Salipyrin** has been employed with excellent results; a dose of gr. viij being often sufficient. **Phenocoll**, is used successfully, especially for the neuralgic pains of epidemic influenza (grippe). **Salol**, is very efficient in some forms. **Salicylates**, in large doses, cured a case of tic doul. of 12 years' standing (Dercum).

Nux Vomica, is most useful in visceral neuralgiæ, as gastralgia, hepatalgia, etc., the tincture with carminatives in the former affection; or Strychnine, gr. $\frac{1}{100}$ to $\frac{1}{32}$ twice or thrice daily: in all forms of neuralgia this remedy should be used in small doses (P). **Ignatia**, in hysterical and intercostal neuralgia with nervous erethism, is valuable (P). **Phosphorus**, gr. $\frac{1}{12}$ every few hours, has made very effective cures (B); gr. $\frac{1}{100}$ to $\frac{1}{12}$ every 3 hours; very useful in all forms, especially when uncomplicated (R); always a good remedy, except for cases due to cold or inflammation, and those not depending on depraved nutrition (H). **Ammoniated Copper**, in neuralgia of the 5th, used by Féreol with remarkable success; ½-grain doses pushed. **Eserine**, very efficient in neuralgiæ of the eyeball, a solution of gr. ij to the ℥ by instillation. **Cannabis Indica**, ¼–½ gr. doses of extract 2 or 3 times a day; especially for neuralgic headache (P); found useful (R). **Cod-liver Oil**, when low nutrition, faulty assimilation (W). **Iron**, when from anæmia; the Tincture of Chloride (♏xxx–xl ter die), also chalybeate waters (B); moderate doses only required (R); in chlorotic subjects, of whom nearly all will have neuralgia (Tr). **Iodides**, for neuralgia of fifth, dependent on syphiloma of the nervous system, pain nocturnal chiefly (B). **Bromides**, benefit some kinds, especially ovarian (B); Potassium Bromide occasionally relieves (R). **Ammonium Chloride**, half-drachm doses in facial and other neuralgiæ, is much used (R); a very efficient and diffusible stimulant, gr. xx–ʒj at first, repeated every hour during the attack (H). **Chloroform**, as anæsthetic to relieve pain, is occasionally useful locally, also as spray for uterine neuralgia (R); by deep injection into vicinity of affected nerve ♏v–xv of pure Chloroform, a very efficient method of dealing with long-standing cases (B); used in one case it caused symptoms so severe as to imperil the life of the patient (W). **Theine**, hypodermically, is promptly analgesic, and has prolonged influence, but must be aided by remedies to improve the nutritive state of the affected nerves, or those which are capable of removing the diathesis upon which the neuralgiæ depend (Mays). [See Formula below]. **Caffeine**, hypodermically has been found useful, especially in cervico-brachial neuralgia (P). **Cocaine**, as a hypodermic injection, a 4 or 5 per cent. solution is very effective if administered in the vicinity of the aching nerve (R); also by instillation in neuralgia of the eyeball, and whenever it can be applied to the mucous surface in the vicinity of the pain. **Croton Chloral**, very effective, especially in tic douloureux and sciatica, gr. ij–v every hour till gr. xv are taken (B); in facial, that from carious teeth, that of neck and back of head, tic douloureux, etc. (R): gr. j, every ½-hour is a very efficient dose (Smith); rarely of any value, but when used is best given in 20-grain doses twice daily (H). **Chloral** and **Camphor,** equal parts, triturated together, and painted over surface (R); also with Morphine (B). **Amyl Nitrite,** inhaled in dysmenorrhœal neuralgia (B); and when of 5th nerve (R). **Nitro-glycerin,** has often afforded great relief (Wa).

Sumbul, for certain types, of more value than any other remedy; facial, sciatic, or ovarian, in women of nervous constitution, often yield to it at once (P). **Cimicifuga,** in neuralgia of the 5th from cold, and in ovarian neuralgia (B). **Gelsemium,** successful in neuralgia of 5th (B); especially dental branches (R); of value in trigeminal, ovarian, etc. (W); in suitable cases small doses answer as well if not better than large ones (Pf); ♏iij of the tincture every ½ hour often succeed miraculously with no ill results in neuralgiæ about the head and face (Smith); no better remedy in tic douloureux, but must be given in large doses, ♏x–xv of a strong tincture or fluid extract (H). **Zinc Valerianate,** extremely beneficial in neuralgia from reflex irritation of female pelvic organs (B). **Spigelia Anthelmia,** useful in facial form (P). **Ammonium Valerianate,** or **Zinc Val.** in neuralgia of face or head (R); the latter in nervous cases, and uterine (Wa). **Chamomile,** in neuralgia of 5th nerve (R). **Staphisagria,** internally and externally often curative in obstinate facial and cervical neuralgia (P). **Ergot,** much employed in visceral forms, especially gastralgia (P); said to be useful (R).

Digitalis, is strongly recommended in sciatica, also locally in earache (P). **Valerian,** serviceable in facial neuralgia of hysterical type (P). **Bibiru Bark,** in intermittent forms (P). **Pyrethrum,** root, is chewed with benefit in facial neuralgia (P). **Capsicum,** a strong infusion, on lint covered with gutta-percha (R). **Coccus Cacti,** has been very successful in 20–30 minim doses of a ⅛th tincture twice daily, the larger doses in the paroxysm (W). **Peppermint,** the Oil, painted over the part in facial neuralgia (R); especially the Chinese oil, which contains a large excess of **Menthol,** a very useful application in superficial neuralgiæ (W). **Turpentine,** has cured tic douloureux and sciatica (B); often of wonderful service (P). **Potassium Chlorate,** for facial neuralgia (B). **Alcohol,** with much volatile Ether; care must be taken in prescribing it (R). **Piscidia,** almost specific in many forms, useless in many cases (W). **Tonga,** is efficient in facial neuralgia, ♏x–xx every two hours (H). **Osmic Acid,** a one per cent. aqueous solution with Glycerin to prevent change, of which 5 to 10 drops hypodermically, has made striking cures of inveterate neuralgiæ, with no ill effects resulting (Shapiro). **Carbonic Acid Gas,** injected into vagina for neuralgia of uterus. **Aquapuncture,** strangely relieves pain in a superficial nerve, so much so, that some hold the curative effects of morphine injections to be due to the water (B). **Counter-irritation,** Mustard poultices in neuralgic pains (P); blisters to a posterior branch of the spinal nerve-trunk from which the painful nerve issues (Anstie). **Wet Pack,** is of great benefit, especially in sciatica. **Intense Cold,** produced by a spray of Methyl Chloride, or concentrated Carbonic Acid gas, directed along the nerve from special apparatus, immediately relieves the pain, and usually cures (Jacoby). **Compressed Air,** by insufflation into the middle ear, in cases of persistent and paroxysmal temporo-occipital neuralgia, due to chronic follicular pharyngitis and inflammation of middle ear (Legal's Disease); if these insufflations result in diminution of the pain, treatment should be directed to the naso-pharynx and Eustachian tubes (Masucci). **Galvanism** of the affected nerve, one of the most important curative measures; a continuous current of 4 to 8 cells down the nerve generally answers best, though some cases are helped more by a rapidly interrupted faradic current: Electricity is of no value in cases dependent upon organic lesions, and in any individual case is purely experimental (W). **Diet,** Animal fats necessary, as Cod-liver Oil, butter, cream, etc., in as large quantity as can be digested. **Rest** often needed, with protection from cold and damp, flannel clothing, bathing and shampooing. [Compare GASTRALGIA, HEPATALGIA, SCIATICA, TIC DOULOUREUX, HEMICRANIA, etc.]

Prescriptions.

For Local Use.

℞. Chloroformi,
Tinct. Aconiti, . . . āā ℥ss.
Linim. Saponis, ... ℥j.
M. Sig.—Apply on flannel and cover with oiled silk for superficial neuralgia.

℞. Aconitinæ (Duquesnel), . gr. iv.
Veratrinæ, ... gr. xv.
Glycerini, ... ʒij.
Cerati, ... ʒvj.
M. Sig.—To be rubbed over the part, avoiding any abraded surface carefully.
(*Da Costa.*)

℞. Mentholi, ... gr. xlv.
Cocainæ Hydrochlor., . . gr. xv.
Chloralis Hydratis, . . . gr. x.
Vaselini, ... ʒv.
M. ft. ung. Sig.—For local use.
(*Potter.*)

℞. Veratrinæ, ... gr. xl.
Adipis, *vel* Unguenti, . . . ℥j.
M. Sig.—Local use. (*Da Costa.*)

℞. Theinæ,
Sodii Benzoatis, . . . āā ʒj.
Sodii Chloridi, ... gr. x.
Aquæ Destil., ... ℥j.
M. Sig.—3 to 20 drops hypodermically at central seat of disturbance. (*Mays.*)
♏vj = gr. ss of Theine.

For Internal Use.

℞. Phosphori, ... gr. ss–jss.
Alcoholis, ... q. s. *ad* solv.
Spt. Menthæ Piperitæ, . . q. s.
Glycerini, ... q. s. *ad* ℥iv.
M. Sig.—A teasp. after each meal.
(H.)

℞. Cupri Ammonio-sulphat., . gr. j–iv.
Syr. Aurantii Flor., . . . ℥j.
Aquæ Destil., ... ℥iij.
M. Sig.—One-third as a dose, thrice daily. (*Prof. Ferol.*)

℞. Quininæ Sulphatis,
Ferri Pyrophosphatis, āā ʒj.
Strychninæ Sulphat., . . . gr. ss.
Ac. Phosphor. Diluti, . . . ʒij.
Syr. Zingiberis, . . ℥ij.
Aquæ, ... q. s. *ad* ℥iv.
M. Sig.—A tablespoonful twice daily.

℞. Aconitinæ Crystal., . . . gr. $\frac{1}{15}$.
Quininæ Hydrobrom., . . gr. xx.
M. ft. massa, et div. in pil. no. xij.
Sig.—One every 4 or 5 hours. (*Potter.*)

℞. Tinct. Aconiti,
Tinct. Colchici Sem.,
Tinct. Cimicifugæ,
Tinct. Belladonnæ, . . āā part. æq.
M. Sig.—6 drops every hour until relieved. (*Metcalf.*)

Neurasthenia.

Coca, as a stimulant has been used with benefit, but only for a short time, and acts deleteriously unless given in small doses (W). **Kola-nut** is used in France, contains Caffeine, and is subject to the same remarks as above. **Musk,** is a valuable remedy in such cases, being stimulant and antispasmodic; it stimulates the nervous centres when exhausted, without producing any very pronounced symptoms (W). **Hypophosphites,** the Syrup, with Strychnine, is of service as a general tonic, in connection with other remedies. **Arsenic,** is often very serviceable: Fowler's or Pearson's solution, in doses of ♏iij–v, in water, after each meal. **Aurum,** the Bromide of Gold and Arsenic (Barclay), gave excellent results in 3 out of 4 cases of marked neurasthenia, in doses of ♏v of the solution 4 times daily (Love). **Artificial Serum** in cases of lowered arterial tension (lessening of first sound, tachycardia embryocardia), an injection hypodermically of ♏xv of the solution formulated below, 2 to 4 times a day (*La France Médicale*). **Diet** should be chosen from the most readily assimilable food, calling for a minimum amount of digestive work. As a rule, neurasthenics eat too much and drink too little; plenty of water, at least a litre and a half per day, is the best drink; it maintains the arterial tension, irrigates the tissues and assists the excretion of debris. Milk should be prohibited, also vegetable soups, peptones and extracts of meat. The albuminoid element of the food should not exceed one-sixth of the total (Vigoreaux). **Counterirritation.** The actual cautery along the spine has rendered excellent service in several cases of neurasthenia accompanied by neuralgia of the superficial branches of the spinal nerves. Its action is doubtless often a mental one, and it renders the carrying out of the rest-cure more thorough than when attempted without something to enforce quiet. **Rest-cure**, with forced alimentation and systematic massage to keep up the muscles while holding the nervous system as inactive as possible, will do more than medicine in these cases. Many such will recover under the discipline and quiet of an hospital or sanitarium alone; while others are greatly benefited by removal from home influences and cares, and from association with certain persons who irritate them. [Compare GOUT, HYSTERIA, SPINAL IRRITATION, ADYNAMIA, EXHAUSTION.]

Prescriptions.

Artificial Serum.

℞. Sodii Phosphatis Pur., . . ʒ iij.
Sodii Sulphatis Pur., ... gr. lxxx.
Sodii Chloridi Pur., ... gr. xxx.
Ac. Carbol. Cryst., ... gr. v.
Aq. Destil. Bullient, . . *ad* ℥ iv.
Dose, ♏xv hypodermically.

Tonic and Stimulant.

℞. Tinct. Kolæ, ... ℥jss.
Ac. Citrici, ... gr. xx.
Sodii Arseniat., ... gr. j.
Tinct. Cocæ, . . q. s. *ad* ℥ iv.
Dose, ʒj at each meal.

Neuritis.

Strychnine, internally, is of value, and may be given in increasing doses (O). **Antipyrin** and **Salicylates**, are recommended in the acute cases with fever (O). **Arsenic** may be employed (O): the Bromide of Gold and Arsenic cured a case of neuritis with partial hemiplegia lasting five years, with inability to walk and considerable pain along the spine and in right arm and leg (Barclay). **Potassium Iodide** and **Mercury**, if there is a history of syphilis (O). **Massage** is probably the most reliable means at our command in the later stages, when the atrophy is marked and the pains have lessened. Contractures may be gradually overcome by passive movements and extension. The interrupted current is useful when the acute stage is passed (O). [Compare ALCOHOLISM, SPINAL IRRITATION, NEURALGIA.]

Nightmare.

Potassium Bromide, in nightmare of adults; and children's attacks of night-screaming often associated with squinting: the digestive organs may also require attention (R). **Camphor-water**, a teaspoonful or two the most suitable medicine (H). **Sleep**, in abundance, may prevent (H). **Diet**, light; avoid late meals.

Nipples, Sore, Fissured.

Benzoin, an admirable local application (P); the tincture locally for slight erosions (Parvin). **Arnica**, the Cerate or **Glycerite of Starch**, or Glycerin, 1 to 2 of Eau-de-Cologne (R). **Silver Nitrate**, touched lightly, is effectual (Wa). **Sulphurous Acid**, solution neat or diluted, constantly applied, or with equal quantity of Glycerin as lotion (R). **Collodion**, sometimes used (R); useful for protection (P); as coating (B). **Alcohol**, Brandy and water as lotion before delivery and after each suckling to prevent cracking (R). **Borax**, saturated solution, beneficial (Wa). **Iron**, the Solution of the Subsulphate diluted with 3 parts of Glycerin, and applied with a camel's-hair brush, an effective application for fissured nipples (B). **Tannin**, the Glycerite, one of the best applications to fissured nipples (B). **Lead Nitrate**, in Glycerin, or ointment ʒj to ℥j, in fissured nipples (B). **Zinc Shield**, constantly worn (R). **Balsam of Peru** or **Tolu**, valuable as application, with Oil of Almond, gum arabic, and rose-water (P). **Rhatany**, as wash or cerate, has had great success in fissure (Tr); 1 part of extract to 15 of Cacao-butter (Wa). **Nipple-shield**, to give the nipple rest while the child sucks, gives great comfort. [Compare LACTATION, MASTITIS.]

Prescriptions.

℞. Balsam. Peruvian., . . . ʒij.
Olei Amygdalæ, ... ʒjss.
Mucil. Acaciæ, ... ʒij.
Aquæ Rosæ, ... q. s.
M. Sig.—Apply to the nipples after each nursing. (*Phillips.*)

℞. Liq. Plumbi. Subacet. Dil., ℥ss.
Ext. Opii, ... ℥j.
Aquæ Rosæ, ... ℥iijss.
M. Sig.—Lotion, to be used after a bread-and-milk poultice, for inflamed nipples. (*F. Barker.*)

Nodes.

Mercury, the Oleate of Mercury and Morphine externally, is very valuable (R). **Potassium Iodide**, as ointment in conjunction with internal use, in syphilitic nodes of children; also in non-syphilitic periosteal thickenings (R): in syphilitic nodes it holds the first place, especially when pains are worse at night, and by heat of bed (Wa). **Stramonium** leaves, locally, relieve (Wa). [Compare EXOSTOSIS, PERIOSTITIS.]

Nymphomania.

Potassium Bromide, when from plethora; not useful when relaxation, or from cerebral lesion (B); large doses required, at least gr. xx ter die (R); an abundance of evidence testifies to its value (W). **Tobacco**, to nausea, effectually cures, but is horribly depressing (B). **Camphor**, in considerable doses said to control inordinate sexual desire (R); at present not much relied on (Wa). **Lupulin**, seems worthy of fair trial (Wa). **Sulphur**, or dilute Sulphuric Acid internally, when arising from hemorrhoidal congestion, not an infrequent cause (Wa).

Obesity.

Banting Dietary is alone sufficient to improve the condition; its chief feature is the exclusion of the two elements, starch and sugar, from the food; therefore bread (except toast, or the crust of a common loaf), potatoes, sweet roots, butter, sugar, cream, beer, porter, and champagne, should be avoided. In one year, on this diet, Mr. Banting reduced his weight 46 pounds, and his girth about 12 inches; at the same time, his numerous corporeal infirmities were greatly mitigated or altogether removed; but it cannot be recommended indiscriminately. This was the method of Hippocrates, avoiding all fats, starches, and sugars; in fact, all roots or vegetables grown underground (B). **Meat Diet**, very successful in 42 cases, the diet being confined to rump-steak, hot water and codfish, for 14 days, absolutely excluding everything else (Smith, in *Brit. Med. Jour.*, Nov. 20th, 1888). The **Schweninger** or **Œrtel** method is similar, using chiefly albuminous food, excluding fat and carbohydrates, limiting the fluids drank, especially at meals, and enforcing exercise. **Peanuts**, are an excellent article of food for the corpulent (Furbringer). [See under DIABETES MELLITUS.] **Iodoform** is highly efficient, but causes wasting and anæmia, the latter by injuring red blood corpuscles (B). **Iodol**, in 2-grain doses thrice daily, is equally effective (B). **Alkalies**, as solutions of Oxides or Bicarbonates (R); alkaline mineral waters, with exercise and dietary (B); serviceable (Wa); Liquor Potassæ ʒss in milk, thrice daily, of established value (Wa); generally fails (R). **Ammonium Bromide**, sets up gastric catarrh (B); but lessens corpulency (Wa). **Sulphurous Waters**, especially Blue Lick, ℥iv before each meal (B). **Potassium Permanganate**, for attendant dyspepsia and flatulence; also useful for the obesity; gr. ¼–j ter die, in aq. dest. (B). **Vinegar**, only successful at expense of serious injury to the body (R). **Fucus Vesiculosus**, has power to reduce adipose tissue; an extract is sold under the title "Antifat" as a proprietary medicine (W). **Phytolacca**, has been long known as a reducer of adipose tissue; a resinoid preparation, named **Phytoline**, is on the market as an "anti-fat," the dose of which is ♏x, six times daily, before and after each meal. **Exercise**, daily, in the open air, is necessary, and if carried on systematically is the most efficient and least injurious method of reducing an excess of adipose tissue.

Odontalgia.

Aconite, as ointment or liniment for facial neuralgia due to diseased teeth, will succeed quickly if at all (R, Wa). **Arsenic**, gr. $\frac{1}{20}$, as escharotic to destroy pulp; when used for pain may be mixed with Opium; it sometimes at first aggravates pain (R, W). **Staphisagria**, the alcoholic solution dropped into the cavity (P). **Alum**, a solution in Nitric Ether (ʒij to ʒvij) is said to be an effectual application (B); Alum and salt powdered and placed in the cavity, excellent when nerve exposed. **Chloral**, rubbed up with equal weight of Camphor, put into cavity (R). **Chloroform** or **Croton-Chloral**, equal parts of the former and Creosote, a good application (R). **Tannin**, a solution in Ether is a good application to a carious tooth (B). **Creosote**, with Tannin or Opium or Chloroform, placed in the cavity of a decayed tooth, often gives relief (R). **Cocaine**, a 5 per cent. solution of the Hydrochlorate on cotton applied to a cavity will often bring instant relief. **Coniine**, a solution in alcohol placed into a hollow painful tooth (R). **Collodion** and **Carbolic Acid**, equal parts, as jelly for stopping carious teeth (R). **Opium**, mixed with Tannin or Creosote inserted in cavity of painful tooth (R). **Morphine**, hypodermically for severe toothache (R). **Oil of Cloves**, inserted into cavity (B, P). **Camphor**, with Morphine and Flaxseed, as a cataplasm to the cheek (B). **Xanthoxylum**, a domestic remedy (B). **Capsicum**, a strong infusion on lint (R). **Gelsemium**, useful in some forms (R). **Zinc Chloride**, to destroy exposed painful pulp (R). **Ginger, Mezereon, Pyrethrum**, are useful masticatories in toothache (P).

Prescriptions.

℞. Linim. Aconiti (B. P.),
Chloroformi, ... āā ʒ iij.
Tinct. Capsici, ... ʒ j.
Tinct. Pyrethri,
Olei Caryophylli,
Pulv. Camphoræ, . . āā ʒ ss.
M. Sig.—A few drops to be placed on a pellet of cotton and applied to the cavity. (*Mason.*)

℞. Ac. Tannici, ... gr. xx.
Mastiches, ... gr. x.
Ætheris, ... ℥ ss.
M. Sig.—On cotton to cavity. (D.)

℞. Creosoti, ... ʒ ij.
Ol. Caryophylli, ... ℥ iv.
Ol. Menth. Piperit., . . . ℥ j.
Camphoræ, ... ℥ ijss.
Alcoholis, . . . q. s. *ad* Oj.
M. Sig.—"Toothache Drops."

℞. Morphinæ Sulph., ... gr. iv.
Atropinæ Sulph., ... gr. j.
Aquæ Destill., ... ℥ j.
M. Sig.—A few drops on cotton, placed in the cavity. (B.)

Œsophagus, Affections of.

Belladonna, the liniment with frictions to the sternum, often very useful as a palliative in stricture of the œsophagus (Wa). **Conium**, in spasmodic contractions, with crampy pains of stomach, flatulence, and globus hystericus, has proved very serviceable (Wa). **Hyoscyamus**, or **Conium**, in stricture of œsophagus, if much irritability; with occasional leeching to relieve exacerbations of pain or spasm (D). **Silver Nitrate**, in stricture of the œsophagus, a weak solution on sponge probang (D). **Anæsthetics**, should be used only to meet temporary indications (W). **Nutrient Enemata**, in stricture of the œsophagus, when swallowing impossible (R); may, in some cases, even preserve life (Wa). [See ENEMATA.] **Dilatation**, by bougies, in non-spasmodic (structural) stricture, the only appropriate treatment (H). [Compare DYSPHAGIA, CHOKING.]

Onychia and Paronychia.

Silver Nitrate, a strong solution in Nitrous Ether, painted over the adjacent tissue, will abort if applied early (B); frequently causes resolution of the inflammation (Wa). **Lead Nitrate**, dusted over night and morning (R); relieves pain and hastens healing process (B). **Turpentine**, applied on a piece of lint or other absorbent material, stops the pain at once, and seems to kill the felon. **Mercury**, as ointment, for 10 minutes in every hour; poultices in interim (R). **Arsenic**, gr. ij ad ℥j Adipis, as ointment, almost specific in onychia maligna (Wa). **Tartar Emetic**, will shorten course and render it milder (R). **Iodoform**, oint. or powder dusted on (B); or 1 part to 9 of Ether applied by a dropper, in syphilitic onychia (Fox). **Iodine**, a strong alcoholic solution locally will often subdue the disorder (Wa). **Chloral**, a solution locally, as antiseptic, and to promote healing (B). **Sodium Chloride**, common salt roasted until chlorine is driven off, equal parts of this, Castile Soap and Venice Turpentine, as a poultice, is a very efficient application. **Carbolic Acid**, to benumb surface during incision (R); which should be carried down to the bone, especially in tendinous whitlow (D). **Cocaine**, hypodermically, will accomplish the local anæsthesia more thoroughly, if delivered deeply into the tissue. **Morphine**, powdered, as local application to relieve pain. **Heat**, by poultices, is very useful. **In Opening** a felon avoid the lines of the arteries on the sides of the fingers, and that of the flexor tendons, which is the median line on the palmar surface. The incision should be made midway between these lines. If the sheath of the tendon be opened the tendon may slough, and the finger be rendered useless (Ashhurst).

Ophthalmia.

Silver Nitrate, a strong solution (gr. xx to ℥j) in granular lids; cautiously when corneal ulcers exist (B); solid stick diluted with 2 to 4 parts of Potassium Nitrate, applied lightly and quickly, or a solution (gr. ij–x to ℥j) painted over everted lids, which should be washed with a solution of common salt, and then with water before being replaced (C); in solution, gr. v to ℥j aquæ destillatæ, locally once a day in purulent ophthalmia of the new-born, washed off with a weak solution of common salt (Noyes); in solution, gr. iij to the ℥, to abort the discharge in catarrhal ophthalmia (Fox). **Boroglyceride**, in many catarrhal affections, especially ophthalmia neonatorum, is a most efficacious application, the solutions used being of 10, 25 and 50 per cent. strength (Fox). **Alum**, gr. viij to ℥j aquæ, applied every ¼ or ½ hour in purulent ophthalmia of children; success depends on the frequency of the application (R); a crayon formed of a crystal of alum, a mild and occasionally useful application (C). **Mercury**, Calomel dusted over membrane in phlyctenular ophthalmia; or after detaching scales rub in Brown Citrine Ointment every night, for eczema of margin of lids (B). **Pulsatilla**, as a lotion to conjunctiva 8 or 10 times in 24 hours, also internally (P); much used by homœopaths (B). **Spigelia**, useful in rheumatic ophthalmia (P). **Antimony**, as Tartar Emetic, gr. $\frac{1}{48}$ to $\frac{1}{36}$, three or four times a day in strumous ophthalmia, with sharp purgation at commencement (R). **Belladonna**, or **Atropine**, locally, of great service in strumous ophthalmia to relieve pain; constitutional treatment also required (Wa); Atropine, gr. ij of neutral sulphate to the ℥ of aqua destillata, twice or thrice daily, as soothing application (C). **Arsenic**, invaluable in inveterate cases of strumous ophthalmia, especially when complicated with cutaneous eruptions (Wa). **Copper Sulphate**, gr. j to ℥j aquæ camphoræ as collyrium in purulent ophthalmia of infants; in substance to inner part of lids in granular conjunctivitis (Wa). **Tannin**, powdered (or in solution gr. j–x to ℥j) produces remarkable results (B). **Lead Acetate**, gr. j. ad ℥j aquæ destillatæ, applied by camel's-hair pencil to surfaces of everted lids, washed away before the lid is replaced; or the Tannate of Lead 1½ to 3 parts fine Oil, and 1 of fresh Lard, a very small piece as ointment to lid (C). **Carbonic Acid Gas**, said to relieve the pain and photophobia of strumous ophthalmia, when locally used (R). **Physostigma**, to reduce pupil and shut out the light (P). **Iodine**, is employed in scrofulous ophthalmia, locally for its alterative stimulation (W). **Iodoform**, in gonorrhœal ophthalmia, and purulent conjunctivitis, of very great value locally, but should be pulverized very finely (Grossmann); does not bear out the claims made for it (Keyser). **Zinc Chloride**, gr. j ad ℥j aquæ as collyrium, in gonorrhœal ophthalmia, used with marked benefit; also a stronger solution (gr. ij-iv ad ℥j), effectually arrests the muco-purulent discharge remaining after subsidence of purulent ophthalmia, and has succeeded admirably in diphtheritic conjunctivitis and pustular ophthalmia (Wa). **Zinc Sulphate**, as collyrium, gr. j-iv ad ℥j, is very serviceable in ophthalmia of infants or adults; Liquor Plumbi added improves it (Wa). **Staphisagria**, especially in tarsal ophthalmia (P). **Colchicum**, when gouty diathesis (P). **Cod-liver Oil**, in strumous subjects, tends to remove the manifestations of the disease (R). **Cold Wet Compresses**, or iced, are held to be essential in early stage of acute purulent and gonorrhœal ophthalmia (C). [Compare BLEPHARITIS, CONJUNCTIVITIS, KERATITIS.]

Opium Habit.

Sodium Bromide, in large and increasing doses, ʒj twice daily, increased by 20 grains each day, to a maximum of 100 to 120 grains twice in twenty-four hours, with simultaneous gradual reduction of the opiate dose, so that from the 8th to the 10th day it is entirely abandoned; each dose of the salt should be given in 6 or 8 fluid ounces of cold water: this drug, with Codeine and Trional, form a combination of unrivalled efficacy, if properly used in proper cases, and combined with minor aids make a method far in advance of any yet presented, to secure the minimum duration of treatment and maximum freedom from pain (Mattison): a combination of Bromides [See formula below], commencing with 40 grains twice daily, increasing to 100 grains twice daily, at 10 A. M. and 4 P. M., freely diluted with water, does not depress vitality, or produce the injurious results of the bromides as commonly administered; this, with ʒj of Warburg's Tincture before breakfast each morning, with the use of Spt. Etheris Nitrosi to eliminate the bromides rapidly, electricity, a mixture of Iron and Strychnine, and an occasional hypodermic of 5 or 10 minims of a 4 per cent. solution of Cocaine for nervous restlessness, is the general line of my treatment (Mann): Bromides may do great harm, if recklessly administered, paralyzing the muscular system and causing prolonged delirium. **Cocaine**, or the fluid extract of Coca, has been used to relieve the depression caused by the withdrawal of the drug (B); has been, by many careful observers, pronounced of great benefit, restoring appetite, inducing sleep, promoting digestion, while soothing the brain and inducing a feeling of contentment and calm (R): should never be entrusted to the patient, lest he jump out of the frying-pan into the fire. In the treatment of the combined morphine and cocaine habit, the latter drug may be withdrawn entirely at once without any suffering, and the former may be reduced one-half at the same time. **Codeine**, in doses of a grain or more, is very useful in combating the nervous agitation which succeeds to the final withdrawal of the opium. [See under SODIUM BROMIDE above.] **Trional**, in dose of 30 to 40 grains as a hypnotic, is of special value in these cases. **Paraldehyde**, in dose of ʒjss–ij, as a hypnotic, is efficient, but its sleep is of briefer duration than that produced by Trional or Sulphonal. **Gelsemium**, subdues the restlessness and motor excitement; proved of great value in one case where 30 grains of morphine were used daily; ♏j of tincture every ½ hour (Pennoyer). **Conium**, in 10-drop doses of a good fluid extract, to check motor activity and relieve the wandering pains. **Sparteine**, in doses of gr. ⅓ to ⅔ hypodermically, at moment of systolic cardiac depression which answers to the period of craving, and corresponds to the truncated curve of the sphygmographic trace, which is characteristic of the period when the stimulant effect of morphine has passed (Jennings). **Nitroglycerin** acts in the same manner, but its effect is more rapid and more ephemeral (Idem). **Cannabis Indica**, may be required in full doses, for restlessness after withdrawal of the opiate, ʒ-doses of Squibb's fluid extract, repeated every hour or two, as required (M). **Galvanism**, is very efficient for the neuralgic pains in various parts; a strong faradic current sometimes acting better (M). **Baths**, if hot, 105° to 112° F., are of great value to relieve disquiet; warm baths are worthless (M). **Chloral**, as a hypnotic, fails in the first few days of abstinence; later in full doses, 45 grains at once, rather than three 15-grain doses, alone or with a Bromide, it can be relied on (M). **Hyoscyamine**, Merck's amorphous, gr. $\frac{1}{12}$ to $\frac{1}{8}$ hypodermically, or more, is useful as a hypnotic, and perfectly safe, in patients of good general condition, in whom the disuse of opium produces unusual insomnia and motor activity (M). **Hyoscine**, the Hydrobromate, in doses of gr. $\frac{1}{100}$ to $\frac{1}{80}$, hypodermically, is highly efficient for the same purpose, but must be used sparingly, as it excites high delirium in most subjects for a time.

Capsicum, very serviceable from its power as a stimulant to the stomach, and its sedative action on the cerebrum (B); removes the sinking sensation at the pit of the stomach experienced by alcoholics, when trying to break off that habit (R). **Lupulin**, with Phosphoric Acid [see formula below], helps to sustain the patient, lessens the force of his suffering, and shortens its duration (Fleming). **Zinc and Iron** as blood tonics, given for a month at least, are valuable, and are best given on alternate days (Fleming) [see formula below]. **Piscidia Erythrina**, has been proposed as a substitute, and highly commended, but is worthless, as are also **Avena Sativa** and many other falsely termed substitutes (M); there is no remedy for the opium habit (Da C). **Zinc Oxide**, for the vomiting and diarrhœa, beginning with gr. j once daily and increasing to tolerance (Da C). **Withdrawal** of the drug suddenly and completely, is the method of Levinstein and other Germans, and is preferred when we can have absolute control and surveillance of the patient (Da C); entails horrible suffering, and is utterly inexcusable (M): a more gradual reduction is the method usually employed, taking off one-third the first day, one-fourth the second day, and then gradually reducing the amount until the sixth or seventh day, when it is entirely withdrawn. No agent is of any value unless strengthened by moral courage and perseverance on the part of the patient (Squibb). Useless to try to cure a patient while he is pursuing his ordinary avocations; failure will result unless there is complete seclusion and entire giving up to the treatment (Mann). It is very important to keep the patient in total ignorance of the rate of reduction.

Prescriptions.

Combination of Bromides.

℞. Ammonii Bromidi,
Sodii Bromidi, ... āā ℥ss.
Potassii Bromidi, ... ʒj.
Liq. Potass. Arsenit., . . ʒj.
Syr. Tolutan., ... ℥j.
Aquæ Menthæ Piper., . . ℥jss.
Syr. Hypophos. Comp., . ℥iij.

M. Sig.—ʒj to ʒij in water thrice daily. Has of total Bromides, gr. 21⅓ in each ʒ. (*Mann.*)

℞. Tinct. Capsici,
Potassi Bromidi, . . . āā ʒiv.
Spt. Ammoniæ Aromat., . ℥iij.
Aquæ Camphoræ, . q. s. *ad* ℥vj.

M. Sig.—A dessertsp. several times daily, in the depression of alcoholism and opium-habit. Instead of the bromide, Fowler's Solution (Liq. Potass. Arsenitis), ♏l, may be added; or Tinct. Nucis Vomicæ ʒij, or Tinct. Aurantii Amari ʒv. (*Ringer.*)

℞. Codeinæ, ... gr. xvj.
Alcoholis, . . . q. s. *ad* solv.
Cocainæ Hydrochlor., . . gr. xvj.
Elixir Simplicis, . q. s. *ad* ℥ij.

M. Sig.—ʒj in water, occasionally, when great restlessness. Formula never to be given to patient. (*Potter.*)

℞. Tinct. Cannabis Ind., . . ♏xl-lx.
Spt. Ætheris, ... ʒj
Aquæ, ... q. s. *ad* ℥j.

M. Sig.—One dose, if insomnia is very protracted. (*Fleming.*)

℞. Tinct. Nucis Vomicæ, . . ʒiij.
Ac. Phosphor. Diluti, . . ʒv.
Syr. Pruni Virg., ... ℥ij.
Aquæ, ... q. s. *ad* ℥iv.

M. Sig.—ʒij twice daily as a nerve tonic. (*Potter.*)

Orchitis.

Pulsatilla, ♏j or less, every hour, relieves pain rapidly, though not the œdema (St). **Belladonna**, int., and as oint. (Extract j ad iij Adipis) when inflammation has subsided (Wa). **Sodium Salicylate**, in gonorrhœal orchitis, subdues pain in a few hours. **Iodine**, tinct. locally to remove swelling after the acute stage has passed (B). **Mercury**, the Oleate locally (B); Calomel gr. iij with Ipecac, gr. x at once, followed by a saline next morning, and smaller doses of Calomel and Ipecac every 6 hours, with Morphine hypodermically, gr. $\frac{1}{4}$ into cellular tissue of scrotum (McElroy). **Ammonium Chloride**, makes a good evaporating lotion, in solution with alcohol and water (R). **Silver Nitrate**, a strong solution to the scrotum, with gentle pressure (Wa). **Tartar Emetic**, in acute orchitis (R). **Digitalis**, locally, is found most useful (P). **Alcohol**, with equal quantity of water, as evaporating lotion (B). **Ice**, benefits and relieves pain (B). [Compare EPIDIDYMITIS.]

Prescriptions.

℞. Ammonii Chloridi, ... gr. xl.
Alcoholis, Aquæ, . . āā ℥ ij.
M. Sig.—Lotion, to be applied on cloths to the part.

℞. Hydrarg. Ammoniat., . . ʒj.
Cerati Simplicis, ... ℥j.
M. ft. unguent. Sig.—Apply locally, with gentle friction.

Otalgia.

Aconite and **Opium**, equal parts of the tinctures, a few drops well down the external meatus, will usually subdue the pain. **Blistering Fluid**, or Croton Oil Liniment, behind the ear often relieves earache (R). **Glycerin**, for dryness of meatus (R); or Olive Oil for accumulation of wax in external meatus dropped in every night, gentle syringing in the morning with warm water (Cl). **Opium**, Morphine in solution, gr. iv to the ℥, with gr. j–ij of Atropine, is an excellent application (B). **Atropine**, gr. $\frac{1}{60}$ in ʒxx of water, a teasp. every three hours for a child in the acute otitis media of children from coryza, very successfully used to abort the otitis, and relieve the earache (Miot); a solution locally is especially applicable in the earache of children from whatever cause, gr. j to the ℥, of which gtt. iv dropped into ear to remain for 10 or 15 minutes. **Pulsatilla**, internally and externally, is often used with advantage (P). **Cocaine**, a 4 per cent. solution sprayed over the tympanic membrane through the external meatus, and forced into the Eustachian tubes by inhaling the vapor and then expanding the tubes by Valsalva's method; this repeated every three minutes is a very sure method of curing otalgia (R). **Olive Oil**, often used warm, as local application, but is of no service, and may do harm by undergoing decomposition and becoming favorable soil for the growth of aspergillus or other vegetable fungi. [Compare OTITIS.]

Otitis.

Pulsatilla, in inflammation of external auditory canal; in otitis, as lotion warmed and applied by syringe, three or four times a day (P). **Aconite**, quickly relieves the pain (R); should be used internally and locally. **Carbolic Acid**, a 20 per cent. solution instilled into ear in moderate otitis, relieves pain at once and checks progress; a solution in Glycerin is best (Rohrer). **Atropine**, in the acute otitis media of children, is very efficient. [See OTALGIA, above.] **Blisters**, behind ears, either kept discharging or repeated, often very useful (Wa). **Leeches**, behind the ear, afterwards a small blister upon the same place, when leech-bites have healed (H). **Warm Douche** frequently, to the ear, to secure cleanliness, then drying the parts (Roosa). [Compare OTALGIA.]

Otorrhœa.

Salol and **Camphor**, equal parts, heated together, have given good results in suppuration of the middle ear; the application causes neither pain nor inflammation (Pégon). **Bismuth Subgallate** (Dermatol), on cotton tampon, introduced after thorough syringing with a 3 per cent. solution of Boric Acid, and careful drying with absorbent cotton,—the best means of combating an acute or chronic otorrhœa, outside surgical measures (Chaniavsky). **Boric Acid**, finely pulverized, as astringent and disinfectant application; may be mixed with pulv. Alum, and just enough powdered Lycopodium to keep it dry:—this packed carefully through speculum, after washing with a weak and tepid alkaline solution. **Absorbent Cotton**, on holder, may be used every few hours by patient to keep pus removed from the canal. **Syringing** with warm salt water, once daily; as absolute cleanliness is essential in the treatment. **Politzer Bag** is a useful adjunct in keeping secretions out of tympanum and breaking up adhesions (Roosa). **Mercury**, in chronic cases, the Brown Citrine Ointment (B). **Lead** lotions much employed (B). [See GONORRHŒA, for formula.] **Potassium Permanganate**, as injection or spray, gr. j to ℥j aq. destil. (B). **Silver Nitrate**, locally, a solution of gr. iv to the ℥ (B); gr. x to the ℥ (Roosa). **Copper Sulphate**, gr. j–v to the ℥ (Roosa). **Tannin**, the Glycerite, locally, is successful (B); especially in children (Wa). **Zinc Sulphate**, locally, in solutions of gr. ij–viij to the ℥ (B); gr. j–v to the ℥ (Roosa). **Cadmium**, gr. ij to ℥j rose-water (B). **Liquor Sodæ Chloratæ**, ♏xv–xxx ad ℥j aquæ when discharge fetid; is highly useful as injection (Wa). **Quinine**, with Sulphuric Acid, advisable in otorrhœa after scarlatina (Wa). [Compare OTITIS.]

Ovarian Neuralgia.

Atropine, subcutaneously, the best remedy for pain in the pelvic viscera (Wa). **Ammonium Chloride**, gr. xxx with gtt. ij–v Tinct. Aconiti, repeated in ½-hour if necessary, to remove pain (W). **Camphor**, with Cannabis Indica, of great service in relieving ovarian pain, especially when spasmodic in character (Wa). **Opium**, often the cause; if use stopped entirely improvement may ensue (E); one of the best remedies in ovarian pain of non-inflammatory character (Graily Hewitt). **Codeine**, has especial value against ovarian pain (Freund), whether of inflammatory or neuralgic origin, in dose of gr. ¼ at least. **Conium**, or, better still, its alkaloid, used as a vaginal pessary, in all cases of ovarian pain, whether neuralgic or inflammatory, is quite a specific (Meadows). **Hot Water**, vaginal injections, night and morning; sunlight baths, fresh air (E). **Ether**, the compound spirit, in doses of ♏xxx–xl as a palliative (Anstie). **Gelsemium**, deserves a trial; its power is great but not certain (Wa). **Leeches** over the groin, or inside the thigh, where ovarian pain persistent, or tenderness and aching (Wa). **Surgical**, Battey's operation as a last resort (E). [Compare DYSMENORRHŒA.]

Ovaritis.

Turpentine Epithems, may be applied hot over the seat of the disease (Wa). **Tartar Emetic**, as ointment for counter-irritation over seat of disease, in subacute ovaritis; at same time a pill of Opium, Hemp and Camphor (Hewitt). [See formula below.] **Opium**, in suppository or enema, more effectual than internally (Tilt). **Mercurial Ointment**, combined with Camphor and Belladonna, over the seat of the disease by friction (West). **Blisters**, in subacute ovaritis are often of great service, placed over the region or to the cervix uteri (Wa). **Enemas**, of warm water, simple or medicated, in subacute ovaritis, are warmly recommended; they should be retained as long as possible (Wa). **Salix Nigra**, the "pussy willow," in doses of ♏xxx of the fluid extract thrice daily, of decided benefit in ovarian hyperæsthesia, etc., of highly nervous women. **Ergot**, is valuable in chronic ovaritis, with rest and Potassium Bromide (Tait). **Ice,** in bag, over seat of pain, when intolerable, and patient too much reduced to bear leeches; is often of benefit (Wa). **Poultices** of Linseed meal, as light as possible, often produce great benefit in ovarian inflammation.

Prescriptions.

℞. Ext. Opii, ... gr. iij.
Ext. Cannabis Ind.,
Camphoræ, ... āā gr. vj.
M. ft. pil. no. vj. Sig.—One pill twice daily. (*Graily Hewitt.*)

℞. Ung. Hydrargyri, ... ʒvj.
Camphoræ, ... gr. xl.
Ext. Belladonnæ, ... ʒij.
M. ft. unguent. Sig.—To be rubbed in twice daily. (*West.*)

Oxaluria.

Mineral Acids, when eructations of sulphuretted hydrogen (R). **Nitro-muriatic Acid,** renders important service (B); especially in the condition showing general malaise, weakness, and depression of spirits, with oxalate crystals in the urine (W); also in sciatica and other forms of neuralgic rheumatism accompanied with oxaluria, full doses (♏vj–x) of this acid, with an occasional brisk purgative, and cold douche, followed by friction (Wa). **Zinc Sulphate,** often very serviceable in irritability of the nervous system, associated with dyspepsia and oxaluria (Bird). **Lactic Acid,** aids imperfect digestion (B). [Compare DYSPEPSIA.]

Ozæna.

Gold, the auric salts are very serviceable in syphilitic ozæna (B). **Mercury,** the Ointment of the Nitrate in syphilitic form; the White or Red Precipitate with 58 times its weight of sugar, snuffed after clearing the nose, in non-syphilitic forms (R). **Potassium Permanganate,** ʒj to Oj solution as an injection or spray (B). **Hydrastis,** the fluid extract locally (B); ʒj to ℥viij solution as lotion with ♏v of the tincture internally thrice daily (P). **Bromine,** as inhalation, [See formula below]; or **Iodine** with **Carbolic Acid,** or the latter in one per cent. solution, as inhalations (B). **Carbolic Acid,** inhaled, 1 per cent. solution (B). **Silver Nitrate,** applied behind veil of palate;—gr. v–xx ad ℥j (B). **Alum,** solution (ʒj to Oj) for irrigation (R.). **Glycerite of Tannin,** by irrigation (R). **Salicylic Acid,** in very weak solution (1 to 500), as cleansing, astringent, and disinfectant wash, used by retro-pharyngeal syringe, and followed by applications of **Calomel,** in powder, to the ulcerated portions of the mucous membrane (Massei). **Hydrogen Dioxide,** the solution as spray, is a most excellent application. **Salol,** has done good service, as insufflation. **Strontium Iodide,** has been used in scrofulous ozæna, with varied results. **Cubeb,** the Oleo-resin, gtt. xv–xx on sugar after each meal, to restrain the secretion and perhaps modify its character (Cohen). **Calcium Chloride,** gr. xxx–lx with ℥j Decocti Krameriæ; of which ʒij–iij, diluted with an equal quantity of water, should be injected twice daily after cleansing with salt and water (Cohen). [Compare CATARRH, CHRONIC NASAL.]

Prescriptions.

℞. Tinct. Iodi, ... ʒiv.
Ac. Carbolici. . . . . . . ʒj–ij
M. Sig.—Use on sponge in a wide-mouthed bottle as inhalation. To be vaporized by heat of hand. (*Potter.*)

℞. Bromi, ... ℥ss.
Alcoholis, ... ℥ss.
M. Sig.—Inhalation when vaporized by heat of the hand.

℞. Sodii Carbonatis,
Sodii Boratis, ... āā ʒij.
Liq. Sodæ Chloratæ, . . . ʒss–ʒij.
Glycerini, ... ℥j.
Aquæ, ... q. s. *ad* ℥vj.
M. Sig.—Apply by means of a hand-spray apparatus. (*Thornton.*)

℞. Acidi Carbolici, ... ♏xx.
Aquæ Calcis, ... Oj.
M. Sig.—Use as wash or spray.

Pain.

Opium, is universally used to quiet pain. **Morphine**, hypodermically, in vicinity of nerve, is curative when not so by stomach; Morphinæ Acetas vel Sulphas gr. $\frac{1}{6}$ to $\frac{1}{2}$, with Atropine gr. $\frac{1}{120}$ to $\frac{1}{110}$; Caution! morphine habit (B): sometimes a single injection curative of sciatica and neuralgia. Poultices containing Laudanum useful in inflammation. Linimentum Opii by friction, relieves pleurodynia, neuralgia, etc. The conjoint administration of Morphine and Antipyrin is much more efficient than the use of either agent alone to relieve pain. Opiates soon lose their influence in any certain dose, requiring increased quantities to keep up analgesic influence, so in chronic cases it is best to exhaust all other means before resorting thereto (R). **Codeine**, has special influence over abdominal pain, and that of the ovaries, besides being safe as to habit. **Chloral**, has no direct pain-relieving power, except in dangerous doses. To relieve pain and promote sleep, the best agent is a combination of Chloral and Morphine; cautiously, if heart trouble, or to old drunkards; gr. xv–xxx + gr. $\frac{1}{4}$ (B): sometimes relieves neuralgia and pain of chronic rheumatism, gall-stones, colic, gastralgia, and even of cancer (R). **Aconitine**, locally over seat of pain; one of the most certain and powerful palliatives in neuralgic, rheumatic, and gouty affections (Wa); especially serviceable in neuralgia of 5th nerve (B). **Belladonna**, the best remedy for every kind of pain in pelvic viscera (Anstie). **Atropine**, hypodermically in local pain, neuralgia, sciatica, glaucoma, etc.; when it succeeds, has more lasting effect than morphine (R): for sciatica, tic douloureux, etc. (B). **Iodides**, are magical in syphilitic nocturnal pains of head (B); the Ammonium Iodide, gr. iij ad ℥j Ol. Olivæ, with friction; causes the disappearance of nocturnal syphilitic pains (W). **Cimicifuga**, relieves many kinds of pain, as neuralgia of 5th, rheumatic headache, ovarian neuralgia, dysmenorrhœa; inferior to Ergot in labor-pains or after-pains; ʒj doses (B). **Conium**, in cancer, rheumatism, neuralgia, ovarian pain, etc. (R); also for the fulgurant pains of locomotor ataxia, chronic alcoholism, sciatica, phthisis, etc., doses of ♏x of a fluid extr. of the unripe fruit every $\frac{1}{2}$ hour, well watched (Madigan). **Iron**, with Belladonna, for the wandering pains of anæmia, in which Morphine is dangerous and Bromides useless (Waugh). **Antipyrin**, a most efficient analgesic; may be administered hypodermically: is especially adapted to neuralgiæ, migraine, and gouty pains. [See *ante*, page 120, also Opium, above.] **Theine**, of very great value for neuralgic pain; affects the nerve outwardly along its course from the site of the injection (Mays). **Chloroform**, locally, inferior to other local anæsthetics, two or three drops on cotton into the ear for faceache or toothache; vapor on raw surface of cancers, for neuralgia of uterus, photophobic eye, etc.; by inhalation in renal and biliary colic, and to produce general anæsthesia, which see (R). **Ether**, spray for local anæsthesia; inhaled for general anæsthesia (R). **Carbolic Acid**, as local anæsthetic (R). **Cocaine**, as a local anæsthetic to mucous surfaces, or hypodermically for minor operations involving a small area, as circumcision, eye operations, etc., has no equal; a 4 per cent. solution of the Hydrochlorate is generally employed (R); has many applications, as odontalgia, otalgia, neuralgia of superficial nerves, etc. **Iodoform**, as suppository in painful diseases of the rectum or bladder (R). **Stramonium**, is used as ointment (R). **Duboisine**, used instead of Atropine (B). **Rhatany**, relieves the pain of ulcerative disease of mucous membranes, pain of burns, ulcers, and especially of blisters (Tr). **Cannabis Indica**, formerly used (B). **Aquapuncture** (B). [See NEURALGIA.] **Galvanism**, of an affected nerve gives certain relief; the positive pole on point of emergence,—negative over superior ganglion of cervical sympathetic (B). **Heat**, if pain is without fever or inflammation (B); warm injections soothe the pain of cystitis, prostatitis and abdominal pains generally (B). **Hot Water**, as bath, relieves pain most wonderfully. Napoleon, on St. Helena, suffering from cancer of the stomach, appreciated highly the pain-relieving power of the hot bath; often staying half and even whole days therein. **Cold**, when pain is inflammatory (B). [See AFTER-PAINS, ANÆSTHESIA, BOILS, CHEST-PAINS, COLIC, GASTRALGIA, HEADACHE, HEPATALGIA, INFLAMMATION, LUMBAGO, MYALGIA, NEURALGIA, ODONTALGIA, OTALGIA, OVARIAN NEURALGIA, RHEUMATISM, etc.]

Prescriptions.

℞. Antipyrini, ... gr. xv.
Cocainæ Hydrochlor., . . gr. ss.
Aquæ Destil., ... ♏xv.

M. Sig.—One-half as hypodermic injection, or the whole when rapid action desired. (*Sée.*)

Paralysis.

Strychnine, internally, gr. $\frac{1}{60}$ to $\frac{1}{30}$ [gr. $\frac{1}{80}$ to $\frac{1}{12}$ (R)]; also hypodermically into the affected muscles,—for hemiplegia, paraplegia, local, mercurial, paludal, rheumatismal, facial, infantile, and diphtheritic paralyses; in that of spinal muscles, of bladder and all local forms (B); often of use in hysterical (P); all forms, except, according to Barwell, in cerebral and spinal paralyses (R). **Nux Vomica,** in hysterical, and in that from lead-poisoning; only in chronic cases (P); in paraplegia from softening and wasting of cord (Brown-Séquard). **Ignatia,** in paralysis of lower extremities (P). **Cannabis Indica,** for retention of urine in spinal paralysis (R). **Rhus Toxicodendron,** is certainly efficacious in paralysis depending on rheumatism (P). **Ammonium Iodide** and **Carbonate,** to aid in absorption of thrombi, thus promoting cerebral nutrition in cases of incipient hemiplegia, due to endarteritis deformans reducing the lumen of the vessels in the brain (B). [See formula below.] **Arnica,** in paralysis of the bladder, and many forms (P). **Phosphorus,** with Cod-liver Oil in the paralysis of white softening of the brain (B); in hysterical paralysis (R); in myelitic paraplegia from excessive venery; the only drug which really affects the nerve-centres (W). **Belladonna,** when depending on chronic inflammation of the cord (R); externally as ointment along spine, with Ergot internally (Brown-Séquard). **Physostigma,** into the eye in ocular paralyses (B); in general paralysis of the insane, also in progressive muscular atrophy without much mental disorder, long-standing hemiplegia, paraplegia, locomotor ataxia (R). **Ergot,** in paralysis of bladder from over-distention (B); paralytic dysuria, sensation of but partial emptying of bladder (P); said to be useful in paraplegia (R); in paraplegia complicated with menstrual irregularity and forms of paralysis arising from spinal congestion (Wa); has cured cases of constipation of the paralytic when all the most powerful cathartics failed (Curran). **Cocculus Indicus,** valuable in hemiplegia, paraplegia, and paralytic stiffness (P). **Picrotoxin** has greatly benefited several forms, especially paralysis of the sphincters, hemiplegia from cold, and glosso-labio-laryngeal paralysis. **Capsicum,** in ½ to 2-grain doses every 4 hours as general stimulant (P). **Colocynth,** in cerebral paralyses, sometimes seems to act favorably upon principles of revulsion or counter-irritation (P). **Mustard,** as an emetic to stimulate failing heart in certain forms of paralysis (P). **Senega,** in rheumatic paralysis, is a powerful help (P). **Nutmeg,** the Oil as external stimulant (P). **Oil of Bay,** has been given; is obsolete (P). **Cajuput Oil,** efficacious in palsy (P). **Counter-irritation,** by blistering fluid in peripheral paralysis of the 7th nerve (R). **Cod-liver Oil,** Anstie insists on it when low nutrition and faulty assimilation (B). **Galvanism,** in hemiplegia and many forms (B). **Electricity,** faradization of the muscles affected. Localized electricity probably of more importance in confirmed spinal paralysis than medicinal treatment. **Massage,** in infantile paralysis, given with Calcium Lactophosphate and Cod-liver Oil. Strychnine injected into the muscles (B). [Compare HEMIPLEGIA, LOCOMOTOR ATAXIA, TONGUE, PARALYSIS AGITANS.]

Prescriptions.

℞. Strychninæ Sulph., ... gr. iij.
Aquæ Destillatæ (fervid), . ʒx.

M. Sig.—For hypodermic administration: ♏x = gr. $\frac{1}{20}$ of Strychnine Sulphate.

℞. Ammonii Iodidi, ... ʒj.
Ammonii Carbonatis, . . . ℥ij.
Liq. Ammonii Acetatis, . . ℥vj.

M. Sig.—A tablesp. thrice daily. See *Ammonium*, above. (B.)

Paralysis Agitans and Tremor.

Hyoscyamus, full doses of the tincture, to palliate the trembling of paralysis agitans and mercurial tremor. **Hyoscyamine**, gr. $\frac{1}{32}$ gradually increased to gr. $\frac{1}{16}$, in paralysis agitans and locomotor ataxia (B). **Hyoscine**, the Hydrobromate, gr. $\frac{1}{100}$ or less, efficiently but temporarily controls the tremor of paralysis agitans; is a useful drug in diseases in which tremor is a marked symptom, as disseminated sclerosis, delirium tremens, etc., and has the great advantage of being in most circumstances quite safe (Weatherly). **Sodium Borate**, gr. xv–xlv daily, in 3 or 4 doses, produced most striking improvement in a case of paralysis agitans which developed after a fall upon the shoulder (Sacaze). **Phosphorus** in small doses, with Cod-liver Oil, is very useful (R). **Hypophosphites**, the Syrup ought to be of service, if taken steadily for a long time. **Cod-liver Oil**, long continued, is more constantly useful than any other medicine (Anstie). **Conium**, has benefited some cases (Harley): Coniïne will control excessive tremor in many instances. **Veratrine**, has been used successfully in tremor due to alcoholism, disseminated sclerosis, and weakness after typhoid fever (Ferris). **Calcium** salts were given by me in one case of tremor occurring at the commencement of general paralysis, resulting in the tremor ceasing for several months (Br). **Cannabis Indica** in large doses, will lower reflex activity. **Picrotoxin** has greatly benefited some cases. **Gelsemium** in full doses, may palliate excessive tremor. **Opium**, **Arsenic** and **Hyoscyamine** may be tried, but the disease is incurable, and nothing can be done except to attend to the physical comfort of the patient; there is no treatment which can be recommended as satisfactory in any respect (O). [Compare CHOREA, DELIRIUM TREMENS; also *Brunton's Pharmacology, etc.*, 3d edition, page 133, for the Pathology of Tremor.]

Parotitis.

Aconite, in febrile conditions (R). **Mercury**, ⅓ grain of Gray Powder, 3 or 4 times a day, is very useful, relieving pain and swelling (R). **Poultice** of Flaxseed meal, a good local application for gland. **Leeching**, often gives speedy relief, when pain is great and resists hot fomentations (Wa). **Care** to avoid chilling, important. **Incision**, when suppuration occurs. **Stimulants** and **Tonics** internally are very necessary in symptomatic parotitis, occurring as a complication or sequel of other diseases, with adynamic symptoms.

Pediculi.

Mercury, as Citrine Ointment or a wash of Corrosive Sublimate solution, for lice on all parts of body; the Oleate destroys lice immediately, and also kills the ova (R): for crab-lice the ordinary Blue Oint. is very disagreeable, and often toxic in its effect on the patient; a better preparation is Calomel in 5 per cent. oint., or the Bichloride, a 1 per cent. solution in alcohol, of which a teasp. to a pint of water, as a bath to parts twice daily. **Cocculus Indicus**, destroys pediculi (P); the tincture undiluted as a wash. **Staphisagria**, as Oil or ointment of the powdered drug (R); "lice-bane" (P); the tincture a very efficient application, and much more cleanly than an oil or an ointment. **Acetum**,—Vinegar will kill the nits, as it softens the adhesive chitin by which the ova are glued to the hairs. **Benzol**, is a very efficient, convenient and cleanly application for destroying pediculi capitis or pubis, if fire or light be carefully avoided: a single application is usually sufficient. **Ether**, washed over the parts, effectually destroys crab-lice. **Tobacco**, a decoction of the leaf is an efficient application, but requires care, especially if the surface is abraded (Wa). **Essential Oils**, will kill pediculi, as Rosemary, Anise (P); or powdered Pyrethrum (R). **Cleanliness**, cannot be dispensed with, and in many cases may alone be sufficient. Boil the underclothing. **Isolation** of person, and of brushes, towels, etc., to prevent infection. In Vienna the following prescriptions are used:—

Prescriptions.

℞. Bals. Peruvian.,
Petrolei, ... āā part. xv.
Olei Pichuri (Oil of Laurel), ... part. j.

To be applied and washed off after 3 hours.

℞. Ac. Salicylici, ... part. ij–iij.
Aceti, ... part. xxv.
Alcoholis (80 per cent.), part. lxxv.

To be rubbed on with a bit of flannel. One application is often enough.

Pemphigus.

Antipyrin, internally, for the itching, is efficient. **Arsenic**, is curative, especially when chronic (B); largest dose, ♏v Liquor Arsen. 3 times a day, on full stomach (R); exercises a powerful influence (Wa). **Mercury**, as Citrine Ointment is largely used (Wa). **Potassium Iodide**, improves the condition in pemphigus (Wa); with good, simple diet; Quinine, Cod-liver Oil, etc. **Silver Nitrate**, in pemphigus, after the bullæ have burst, and excoriations remain (gr. ij ad ℥j aquæ) (Wa). **Water Dressings**, on lint, covered with oiled silk, constantly, in pemphigus and rupia (Wa). **Cod-liver Oil**, with nutritious diet, is a powerful auxiliary to treatment (Wa). **Puncturing** the blebs and evacuation of their contents is necessary as soon as formed; then dusting-powders of Zinc Oxide, Starch, or Buckwheat flour, or lotions of Liquor Plumbi Subacetatis Dilutus.

Pericarditis.

Aconite, when violent throbbing and extreme pain (R); of great value, if given early (P); proves in the highest degree serviceable, when object is to diminish vascular excitement or irritability (Wa). **Spigelia Anthelmia**, useful in rheumatic pericarditis (P). **Digitalis**, when rapid and feeble heart, cyanosis and dropsy (P, N); in second stage when heart flags, a tablespoonful of the infusion every 4 hours is beneficial. **Bryonia**, exceedingly valuable in second stage, that of exudation; fully equals any remedy in pericarditis (P). **Opium**, regularly in grain doses, every 3, 4, 6, or 8 hours, is very beneficial (Wa). **Veratrum Viride**, extract made by inspissating the juice of the root, of which gr. ij, with gr. j of Calomel, every 2 hours, valuable (Waring-Curran). **Quinine**, gr. xv–xx may suppress an acute attack, if given at critical moment (B); may be used as an antipyretic. **Counter-irritation**, has been much abused; useful at commencement, but not in acute inflammatory stage (B); by Iodine painted over the cardiac region, or flying blisters in the second stage. **Iron**, the tincture in full doses may be required in the second stage. **Poultices**, large, hot, often renewed (R). **Ice** may be used instead of poultices in the early stage. **Paracentesis**, by aspiration may be required in the second stage. [Compare ENDOCARDITIS.]

Periostitis.

Mezereon, in the rheumatic and scrofulous form (P). **Mercury and Morphine**, the Oleate externally (R). **Potassium Iodide**, in syphilitic children, also in non-syphilitic periosteal thickening (R); holds the first place for syphilitic affections of the bones (Wa). **Ammonium Iodide**, cures periostitis most readily when syphilitic (Wa). **Staphisagria**, when long bones affected (P). **Iodine**, the tincture, or blisters locally of great service in chronic form (R); under the external use of Iodine it often rapidly improves (Wa). **Poultices**, after an early and free incision, when suppuration takes place (C). **Incisions**, carried deeply, should be made without waiting for fluctuation, when great tension exists and there is a tendency to suppuration; the sides of the abscess should then be brought together with compresses and a bandage (Gross). **Tonics** and **Stimulants**, as milk-punch, Quinine, Iron, and Opium, in full and sustained doses, are imperatively demanded in many cases (Gross). [Compare NODES, ONYCHIA.]

Peritonitis.

Phenacetin, as an antipyretic; is efficient and safe. **Aconite,** of great utility when sthenic reaction; [See Opium below]; should be given early in all inflammations of serous membranes (P). **Bryonia,** exceedingly valuable in second stage, when exudation (P). **Mercury,** when tendency to fibrinous exudations, is employed with good effect (W). **Opium,** to quiet intestinal movements (R); by far the best agent (P). Morphine, gr. ½ hypodermically, will often abort, if given early. Aconite and Opium, the tinctures, gtt. ij of the former with gtt. vj of the latter, in water every hour or two; a larger dose of opium if pain is severe (B); large doses of opium easily borne in this affection (Wa). **Cocculus Indicus,** for tympanites; a few doses will often remove the pain and relieve distention (P). **Quinine,** strongly urged by Trousseau; is naturally indicated in most inflammations (P). **Turpentine,** for tympanites (P); turpentine stupes, v–xv drops of turpentine on flannel wrung out of hot water during acute stage, then blisters for a short time (B). **Leeches,** to abdomen, if patient plethoric, and sthenic reaction, relieve pain (B). **Purgatives,** are inadmissible when from perityphlitis or inflammation of appendix vermiformis (B). **Poultices,** large, hot, and frequently renewed; should be thin, and covered with cotton-wool (R). **Ice,** to abdomen (B); cold relieves (W). **Hot Water,** as fomentations to relieve pain, sometimes cold compress better. **Ice,** sucked or swallowed, to assuage the vomiting; sips of cold water. **Diet,** after acuteness of attack passed, should be mild and unstimulating. [Compare PUERPERAL PERITONITIS.]

Perspiration.

Belladonna, as liniment locally, also the tincture internally, especially in weakly children who sweat profusely (R). **Atropine,** gr. $\frac{1}{200}$ to $\frac{1}{100}$ hypoder. (or in exceptional cases even gr. $\frac{1}{20}$ in pill), in sweating of phthisis and exhausting diseases (R); gr. $\frac{1}{60}$ at bedtime for sweats of phthisis (B). **Jaborandi,** gr. $\frac{1}{20}$ of Pilocarpine, thrice daily, checks profuse perspiration (R, Pf). **Naphtol,** in a 5 per cent. ointment or alcoholic solution, is a very efficient application for local sweating (Kaposi). **Potentilla Sarmentosa,** the Cinquefoil, an infusion of the vine, leaves, and root, may be drunk ad libitum, and is a very efficient remedy for night-sweats, having stopped them when Atropine failed to relieve (Pope). **Salvia,** the ordinary Sage-tea is very efficient, used internally and locally by sponging the body; the infusion for night-sweats of phthisis (Da C). **Quinine,** in exhausting diseases; in many, a night-draught of Quinine, Zinc Sulphate and Sulphuric Acid, useful (R). **Opium,** as Dover's powder, may succeed in profuse colliquative sweating (R); a fact, though hard to account for it (Wa). **Agaricine,** is used successfully, (See formula below). **Agaricic Acid,** in dose of gr. $\frac{1}{12}$ to $\frac{1}{3}$, not hypodermically, one of the most efficient agents against sweating from various causes, especially that after influenzá; in over two years use, it only failed me in one case (Richards). **Camphoric Acid,** gr. x–xxx, dry on the tongue, not over 2 hours before the expected sweating, is remarkably efficient against sweating from various causes, especially that of phthisis even when very profuse (Jas. Wood). **Aromatic Sulphuric Acid,** to check sweats of phthisis; bad for digestion (B). **Muscarine,** has been used with great success in the sweats of phthisis and of other morbid states (R). **Zinc Oleate,** rapidly controls excessive and offensive sweating on slight exertion in the axillæ and groins, also the night-sweats of phthisis (Murrell). **Zinc Oxide,** gr. iij, with gr. ss of Ext. Belladonnæ, in a pill at bedtime for the sweats of phthisis (R). **Gallic Acid,** is very useful for the same condition, and may be combined with Extract of Belladonna (B). **Tannic Acid,** may also be used with benefit. **Aluminum,** the Oleate, checks hyperidrosis and antiseptizes the sweat, thus forming a useful application to the axillæ and groins of children (Wa). **Potassium Permang.,** gr. j in ℥j of water, for fetid perspirations of axillæ, feet, etc. (B). **Salicin,** profuse sweats of hectic fever (Wa). **Salicylic**

Acid, in solution with Borax, the most agreeable and efficient deodorant for fetid perspirations (B). **Carbolic Acid,** 2 parts to 3 of Glycerin and water, twice daily for fetid sweat (Wa). **Oils,** rubbed into the whole skin to prevent sweating accompanying exhausting diseases, as phthisis; but sponging with a weak acid wash better (R). **Ergot,** said to arrest sweating (R). **Sponging,** with acidulated water, or very hot sponging in phthisis (R). [Compare FEET.]

Prescriptions.

℞. Acidi Gallici, ... gr. xxx.
Ext. Belladonnæ, ... gr. ij.
M. ft. pil. x. Sig.—Two at bedtime.

℞. Acidi Tannici, ... gr. xxx.
Pulv. Digitalis, ... gr. xv.
Ext. Cinchonæ, ... q. s.
M. ft. pil. xx. Sig.—One at bedtime.

℞. Agaricinæ (Merck), . . . gr. x.
Atropinæ Sulph., ... gr. j.
Ac. Sulph. Aromat., . . . ♏ 1200.

Solve et filtra. Dose, ♏ x in syrup or simple elixir, 5 or 6 hours before retiring, as action is slow.

Pertussis.

Antipyrin, is successfully employed. **Phenacetin,** is highly praised. **Aconite,** in all acute congestions (P); as a preventive or abortive remedy very efficient, when associated with Ipecac and Cherry-laurel water (Dervieux). **Amyl Nitrite,** with Carbolic Acid, in steam atomizer, has proved a very efficient inhalation (Bayliss). **Ipecacuanha,** useful in many cases (R); ♏ j for 5 years of age, every hour or two, with the greatest relief (P); when bronchitic or pneumonic complications, combined with Ammonium Bromide (Wa). **Bromides,** relieve spasmodic element (B); that of Ammonium will readily cure many cases; gr. ij or iij ter die for infants (Wa). **Lobelia,** in spasmodic stages; well tolerated by children; ♏ x of tinct. every hour for child 2 years old; also additional dose when cough is imminent (R, P). **Alum,** when acute stage over and no complication, gr. ij–vj every three hours, or less every hour in Glycerin or Honey (R). **Bromoform,** in daily dosage of 5 to 20 minims, in Glycerin and Alcohol, very efficient in relief of paroxysms, and to reduce their number, but has little other influence on the course of the disease; must be pure, hence colorless; and increasing doses should not be pushed very far, for fear of toxic symptoms (Bedford); may be used by inhalation instead of chloroform or ether, to lessen severity of the paroxysms. [See formula below.] **Hydrogen Dioxide,** the solution, in drachm doses diluted with 2 or 3 of water, internally, cuts short the paroxysms and lessens the duration of the disease. **Benzol,** is a reliable pulmonary antiseptic, and has been used for many years in this disease, with unvarying success (Robertson); the vapor may be diffused throughout the room, carefully avoiding a light or fire. **Ouabaïn,** in doses of gr. $\frac{1}{1000}$ every 3 hours, is highly efficient in all stages of the disease (Gemmell). **Resorcin** in solution, applied to the perilaryngeal mucous membrane, has aborted an attack at the outset in 24 hours, has cured well-marked cases in from 9 to 14 days, and is a perfect method of prophylaxis for children living with those suffering from the affection (Moncorvo). **Naphtalin,** burned in the patient's room, is of high value, both as a palliative and a curative agent (Chavernac). **Belladonna,** obviously of value in febrile stage, is of special use when dentition is in progress; relieves the congestion of air-passages and also the determination of blood to the head (P); good when profuse bronchial secretion; best in spasmodic stage; children bear this drug well; ♏ x of tinct. may be given hourly to a child 2 or 3 years old (R). **Sodium Benzoate** is highly efficient. **Conium,** or the Hydrobromate of Coniine, in doses of gr. $\frac{1}{30}$ to gr. $\frac{1}{8}$ according to age, a very efficient remedy (W). **Drosera,** small doses are very effective (Murrell). **Chamomile Oil,** a very useful remedy (P). **Coccus Cacti** (Cochineal), in doses of gr. $\frac{1}{3}$ thrice daily for infants, has been highly recommended (W); proves very effective in most cases. **Hydrocyanic Acid,** very serviceable in cough by habit, after cessation of whooping-cough proper, or in nervous sympathetic cough of mothers (B, P). **Opium**, in convulsive stage, to produce and maintain slight heaviness (R). **Cocaine**, a 5 per cent. solution, painted on tonsils, fauces, back of tongue, and if possible on larynx, is very efficient (Labrie). **Chloral**, gr. v–x in spasmodic stage, relieves quickly (B); gr. iij–viij every 4 hours (Porter). **Carbolic Acid**, as vapor, with steam atomizer; found to be very beneficial (J. L. Smith). **Castanea**, a decoction of chestnut leaves has been used with much success; dose ad libitum (B); the fluid extract, in ʒ-doses, exercises a remarkable influence over the cough (W). **Valerian**, said to control the paroxysms (R). **Nitric Acid**, well diluted in sweetened water, after the subsidence of the catarrhal stage (B). **Gelsemium**, in spasmodic stage (B). **Camphor Monobromide**, gr. v in mucilage and Syrup. Tolu. 3 or 4 times a day, has been very serviceable (B). **Zinc Sulphate**, gr. ¼–j with Ext. Belladon., gr. ⅙–½, has varying degree of success (B). **Lactucarium**, the syrup as vehicle for cough mixtures (B). **Quinine**, in solution, locally to fauces (Dawson); the Tannate with Sodii Bicarb. of each 5, and Pulv. Acaciæ 100 parts, used with an insufflator (Pollack). **Petroleum**, on rags around head of the bed, is recommended highly by Hildebrandt. **Silver Nitrate**, when acute stage passed (Tr); probably inferior to Alum (Wa). [Compare COUGH.]

Prescriptions.

℞. Chloralis, ... ʒj.
Potassii Bromidi, ... ʒij.
Syr. Pruni Virgin.,
Aquæ, ... aa ℥j.
M. Sig.—A teasp. thrice daily for infants in the convulsive stage. (*Dessau.*)

℞. Olei Morrhuæ,
Mellis Despumat.,
Succi Limonis, ... aa partes æq.
M. Sig.—A teasp. or two as required. (*Sir Wm. Gull.*)

℞. Bromoformi, ... ♏xvj.
Glycerini, ... ℥jss.
Tinct. Cardamom. Co.,
Alcoholis, ... aa ʒij.
M. Sig.—A teaspoonful at commencement of the paroxysm. (*Bedford.*)

℞. Amyli Nitritis, ... ʒss.
Acidi Carbolici, ... ♏x.
Glycerini,
Alcoholis, ... aa ℥ss.
M. Sig.—Use by inhalation with steam atomizer. (*Baylis.*)

Pharyngitis.

Aconite and **Belladonna**, for acute attacks (B); when high temperature (R). **Belladonna**, is very useful, relaxes the pharyngeal muscles (W). **Capsicum**, as gargle, ʒj ad O½ aquæ, in very early stage only (R). **Alum**, gargles, in chronic inflammations (R). **Silver Nitrate**, gr. v–xx ad ℥j, on sponge probang, successful if systematically applied (B); in early stage of inflammation; also in chronic on brush, or as spray (R): the solid stick to each diseased follicle, after scraping (A). **Ammonium Chloride**, gr. ij with ♏xv of Tinctura Cubebæ, every half hour, often controls acute pharyngitis; when a gouty diathesis exists add ♏x of the Ammoniated Tincture of Guaiac, and give every hour (Smith). **Xanthoxylum**, a decoction of the bark locally to throat, and ♏x–xxx of the fluid extract thrice daily, a very successful remedy for chronic pharyngitis (B). **Tannin**, insufflation to affected surface (B). **Cubeb**, powdered, locally, useful (B). **Glycerin**, pure, locally, with Tannic Acid, very serviceable (B); in chronic inflammation of the throat (R). **Glycozone**, frequently applied, is of benefit in follicular pharyngitis (Edson). **Hydrastis**, the fluid extract locally, also ♏v–x internally (B). **Alcohol**, diluted, as gargle in relaxed throat (R). **Cimicifuga**, when pharynx dry and spotted over with inspissated mucus (R). **Ipecacuanha**, the wine as spray in non-inflammatory sore throat, with hoarseness from congestion of vocal cords (R). **Pomegranate Bark**, as gargle (P). **Resorcin**, in strong solution, a very efficient application (Tymowski). **Potassium Chlorate**, as lozenge to stimulate the follicular secretions to a healthy condition (A). **Iron**, **Quinine**, and **Strychnine**, as tonics, are mainly indicated (A). **Zinc Sulphate**, as gargle, occasionally employed in relaxed throat (R). **Inhalation of**

vapors, or of pulverized fluids, by the atomizer, found very beneficial (Wa). **Food**, of piquant kind, spices, pepper, mustard, etc., should be strictly prohibited; all fluids should be used at a moderate temperature (A). **Water**, by throat compress, relieves; also in daytime, in obstinate cases. **Rest** to voice and cultivation of beard, are useful aids.

Prescriptions.

℞. Tinct. Aconiti,
Tinct. Belladonnæ, . . āā ʒss.
Tinct. Guaiaci Ammon., . ʒv.
Syr. Limonis, ... ℥ss.
Aquæ Cinnamomi, q. s. *ad* ℥iv.
M. Sig.—A teasp. every 3 hours for acute pharyngitis.

℞. Tinct. Aconiti. . . . . . ʒss.
Ac. Hydrocyan. Dil., . . . ♏xl.
Liquor Ammonii Acetat., *ad* ℥iv.
M. Sig.—Teasp. every 2 or 3 hours according to the severity of the case. In acute and subacute pharyngitis.

℞. Aluminis, ... ʒss–ij.
Sodii Boratis, ... ℥jss.
Glycerini, ... ℥ij.
Tinct. Myrrhæ . . . . ℥ij.
Aquæ, . . . q. s. *ad* ℥iv.
M. Sig.—Use as an astringent gargle, 4 or 5 times a day.

℞. Acidi Tannici, ... gr. lx.
Alcoholis, ... ♏xxx.
Aquæ Camphoræ, . q. s. *ad* ℥iv.
M. Sig.—An astringent gargle, to be used several times a day.

Phimosis.

Belladonna, as ointment, the Extract 7 to 20 parts of Lard, has proved effectual (Wa). **Lupulin**, 5 to 15 grain doses, of advantage after operation, to keep penis at rest (Wa). **Surgical**. Division of the prepuce by a bistoury and director; circumcision (D). **Cocaine**, a 4 per cent. solution injected at several points around edge of prepuce, as local anæsthetic during the operation of circumcision. **Chloroform**, or **Ether**, as an anæsthetic in paraphimosis, before attempting reduction (Wa).

Phlebitis.

Hamamelis, has as decided an influence on the venous system as Aconite on the arterial (Pf). **Mercury**, in frequent and liberal doses, to early and decisive constitutional impression; the best form being Calomel, or Calomel and Blue Mass (Gross). **Rest**, fomentations, poultices, early incision of abscesses, aperients, Opium to relieve pain and insure quiet of mind and body (D). **Blister**, over course of an inflamed superficial vein (R). **Diet**, nutritious, and wine, especially if great loss of blood (D). **Stimulants**, as Quinine and Iron, especially the Tincture of the Chloride, also milk-punch, are needed to combat the depression which is sure to arise: the disease is always dangerous and often fatal (Gross). **Incisions**, must be freely made if abscesses form, and the internal organs watched for multiple abscess. **Ulceration**, if it occur, must be watched for hemorrhage, which should be arrested by compression and styptics (Gross). [Compare PHLEGMASIA, VARICOSIS.]

Phlegmasia Alba Dolens.

Belladonna, and Mercury, equal parts, as ointment, often of much benefit (Wa). **Hamamelis**, has specific action on venous system (P); extolled by Dr. Preston (R). **Blisters**, in early stage; are extremely useful if judiciously employed (L). **Ammonium Carbonate**, often valuable where great prostration; full doses (Wa). **Creosote**, injections daily (Wa). **Hydrochloric Acid**, ʒj of dilute acid in Oij of Barley-water, with ℥ss of Potassium Chlorate, to be taken daily (Mackenzie). **Opium**, large doses internally, with leeches and anodyne ointments (Wa); Laudanum, if pain severe, sprinkled on hot fomentations (L.). **Leeches**, of great service during the acute inflammatory stage (Wa.). **Bandag-**

ing, when the more acute symptoms subside; at first w
with ordinary roller bandage (L.). **Regimen**, should l
compresses in active stage; douches, hot and cold in ch

Phlegmon.

Aconite, or **Belladonna**, are certainly efficacious; Aco
ides, to abort, or when inevitable, to promote; gr. ss–j
Potassa Sulphurata (B.). **Silver Nitrate**, strong solution
early in the vicinity (B). **Carbolic Acid**, injections; a 2
used with great success (W). **Iodine Injections**, after e
pare ERYSIPELAS.]

Photophobia.

Atropine, a neutral solution of the Sulphate (gr. j ad
into the eye every 4 hours (C); if much lachrymation, s
tion, it may be applied more frequently; in some case
and has to be abandoned (Wa). **Conium**, in scrofulous
Coniine in ʒj of Ol. Amygdalæ, locally twice or thrice
Coniine (Wa). **Mercury**, Calomel by insufflation (C).
spasm of the orbicularis in severe photophobia (C). C
the best (R). **Arsenic**, in the condition described by ol
ophthalmia, with its attendant photophobia, is very va
remedy (C). **Chloroform**, the eye exposed to the vapor of
photophobia will be speedily relieved (Jones). **Croton-Ch**
people and those suffering from syphilitic corneo-iritis
Chlorate, internally, is most useful in some cases (Verno
per cent. solution, a few drops upon the conjunctiva, w
efficient in most cases.

Phthisis.

Creosotum, gives excellent results (Bouchard); is direc
the initial stage of the disease (Fräntzel); promotes th
means of which recovery is found to occur (Jaccoud);
Creosote should be used, in doses of ♏j in whiskey and
hours: should be largely diluted to prevent irritation, an
months,—relieves cough, diminishes expectoration, stops
weight, decreases fever, promotes appetite, and in ma
local condition, as shown by the physical signs (Robinso
Carbolic Acid, to check expectoration (R, P); Creosote is
forms, gr. iij in a pill with Bals. Tolu., three or four time
increased until urine is darkened; or it may be inhaled
water (B). **Guaiacol**, the principal ingredient of Creosote
may be given in the same doses; the Carbonate, in dose
to ʒjss daily, is better borne, and a useful substitute.
per cent. of Guaiacol, which it yields up in the intestines
gradually increased to 12 grains, thrice daily, it has giv
equal if not superior to those from Creosote (Walzer).

Iodine, or **Iodoform**, with Creosote, Carbolic Acid, Eu
Alcohol or Ether, as a combination for an antiseptic inha
useful; also as intra-pulmonary injection, a solution of
ture of Iodine, 1 to 4 of distilled water, of which ♏x-xx
or 5 days, through the 1st, 2d, or 3d intercostal space
axillary region, avoiding the pericardium and great vesse
form, internally, has proved extremely effective in all f
numerous observers in various countries (S. Smith); th
most active germicides, it is very destructive to the bac

Iodol may be advantageously substituted for Iodoform (B). **Hydrogen Dioxide,** the solution internally, in doses of ʒj to iij diluted with 3 to 4 of water, renders good service by promoting digestion, palliating cough, and increasing the activity of chalybeate remedies. **Cod-liver Oil,** holds first rank as a remedy and food in the chronic forms; a teasp. after meals ter die is enough; when not well borne may be combined with Aqua Calcis, Comp. Tinct. of Gentian; or, when not digested, with Ether (B, R); is of great utility by improving nutrition, and by affecting the tubercle; give ℥ss thrice daily one hour after meals, with ♏v–xv of Ether, or an equal quantity of malt or whiskey; do not give it in hot weather (Da C). **Terebene,** with Thymol and Carbolic Acid, equal parts of each, and ʒss to a pint of hot water as an inhalation: is extremely useful for the dyspnœa (Camman). **Aconite,** in small doses for the irritative fever, is a remedy of much value (Da C). **Antipyrin** in a 2½-grain dose hourly for 3 doses daily, for the hectic fever. **Phenacetin** is better borne and is efficiently antipyretic; extensively employed in the hectic of phthisis. **Cinchona,** for the hectic and sweats, Quinine, gr. xv–xx (B); if small doses fail, a dose of 6 or 8 grains at once, or in portions repeated hourly (R). **Ipecacuanha,** spray to throat when bronchial asthma and emphysema combined with fibroid phthisis (R). **Opium,** or **Morphine,** in a viscid vehicle for cough, or as lozenges when cough due to inflamed throat (R); must in time be given for the cough, which is an irritative one. **Codeine,** gr. ⅛ to ¼ in simple elixir, is useful and does not constipate (Da C). **Alcohol,** an important remedy; may be given with Cod-liver Oil; or Spt. Frumenti, ℥j–℥ij with some Bitter, immediately after meals, or the stronger wines; if it disagrees, it harms:—curiously, it induces an intractable form of phthisis (B). **Verbascum,** the Mullein-plant, has long been a popular remedy in phthisis; it facilitates expectoration, improves the general condition, and palliates the cough. **Calcium Phosphate,** in diarrhœa, and in chronic forms of phthisis, with little or no fever (R). **Iodine,** should be more used than it is; the compound solution, gtt. j–iij thrice daily, or when anæmia and not much fever use Ferrous Iodide, gr. xv of the Syrup pushed to ʒj ter die (Da C); as inhalation in chronic phthisis; to lessen expectoration and cough; also as liniment painted under clavicles, to allay harassing cough, and to check secretion (R). **Cimicifuga,** useless in tuberculosis, but in phthisis it relieves cough, improves appetite, lessens intercurrent bronchitis, and so improves the patient's general condition (Wa). **Aurum,** the Bromide of Gold and Arsenic internally, with inhalations of Papoid as glycerole by the atomizer, gave astonishing improvement in two cases of fibroid phthisis with cavities, due to neglected pneumonitis; also in a case of grinders' consumption (E. A. Wood); the Chloride has rendered excellent service in the hands of Gibbes and Shurley. [See *infra*, under Chlorine.] **Arsenic,** valuable in chronic forms as no other remedy; but not in caseous nor where much hectic; may be given by stomach or fumigation (B). [See under ASTHMA]: as cigarettes, useful in the diarrhœa, probably diminishes temperature,—caution required (R); of great value in early stage, in later stages it is of no avail; Arsenous Acid, gr. $\frac{1}{40}$, or ♏iij of Fowler's solution, thrice daily (Da C). **Cocaine,** locally for the throat symptoms, to be applied just before meals are eaten (Da C). **Sulphurous Acid,** by inhalation, spray, or fumigation, in chronic phthisis (R). **Sanguinaria,** helps expectoration, and revives the enfeebled stomach (P). **Camphorated Naphtol,** undiluted, or ♏ij in Olive Oil, hypodermically, used with very good results in 15 out of 32 cases so treated (Reboul).

Chloroform, with Glycerin or Honey, for the cough in fibroid phthisis (R); by inhalation continuously as germicide, in connection with other agents of same action (Potter, see *Pacific Medical Journal*, October, 1890). **Chlorine** gas, by inhalation, also the hypodermic use of Iodine and Chloride of Gold and Sodium, extensively employed in pulmonary consumption with good results. (Gibbes and Shurly in *Therapeutic Gazette*, April, 1891, and April, 1892.) **Ferrum,** often prescribed; has no especial influence on deposit (B); is prescribed in tuberculosis (Tr); the Liquor Ferri Perchloridi, ʒj ad ℥j aquæ, the most serviceable local application in laryngeal phthisis, diminishing irritability of the mucous membrane, and quieting cough (Mackenzie). **Mercury,** gr. $\frac{1}{100}$ of

Corrosive Sublimate every two or three hours, for the diarrhœa (R). **Benzoin**, as inhalation, to lessen cough and expectoration (R). **Mineral Acids**, for the indigestion; the Acidum Muriaticum Dilutum (B). **Prunus Virginiana**, has a domestic reputation, probably due to its influence over cough; the Syrup is much used as vehicle for cough-mixtures (B). **Hypophosphites**, are very useful in chronic cases (B); have no special effect (Da C). **Digitalis**, as antipyretic; deranges intestinal canal, therefore injurious in phthisis (B). **Copper Phosphate**, in nascent form soluble in an alkaline body, is held to be specific by Prof. Luton of Rheims; his formula contains Neutral Acetate of Copper 0.15, Cryst. Phosphate of Sodium 0.75, Glycerin and Pulv. Licorice, āā q. s. for one pill. **Copper Sulphate**, gr. $\frac{1}{12}$ or **Silver Nitrate**, gr. $\frac{1}{4}$, or **Bismuth**, gr. xx, for the diarrhœa (Da C). **Gaseous Enemata**, Bergeon's treatment, made a noise for a few months, but soon fell into contempt. **Baths**, sea-bathing, if chronic, little or no fever, without active deposition of tubercle, or scrofulous pneumonia; Turkish baths for the cough (R). **Grape-cure**, is serviceable (B). **Aliment**, should be nutritious and digestible, malt liquors better than wine or spirits:—Extract of Malt, Cod-liver Oil, plenty of meat, and alcohol in moderation (Da C); warm clothing, bathing and friction of skin, moderate exercise, and a suitable climate. **Forced Alimentation**, when anorexia appears, and superalimentation at all times, necessary to successful treatment; washing out the stomach daily by syphon-tube, with warm water alkalinized with Borax, and then feeding through tube (Robinson). **Climate**, the best by far is that of Egypt, or Algeria; next coming New Mexico, Southern California, especially in the desert along the Colorado River, South Carolina and portions of Georgia and Florida; the latter being especially suitable for cases having a co-existing bronchitis; for some cases Colorado is very good, and the Adirondack region for early cases in which there is no tendency to hemorrhage (Da C). **Tuberculin** or **Koch's Lymph** has been a deceptive bubble which for a short time commanded the attention and admiration of the whole world, but which has been ruthlessly pricked by the critical scalpel in the hands of the father of modern pathology (Senn). **Amick Chemical Cure** consists in the use of Calomel, Iodoform, Guaiacol, etc., as described by Dr. N. B. Shade in various journals (Waugh). [Compare COUGH, HEMOPTYSIS, HECTIC FEVER, PERSPIRATION.]

Prescriptions.

℞. Quininæ Sulphatis, . . . gr. xviij.
Pulv. Digitalis, ... gr. vj.
Pulv. Opii, ... gr. iij.
M. ft. pil. no. xij. Sig.—One pill thrice daily, for the irritative fever. (*Niemeyer.*)

℞. Pepsini (Jensen), ... gr. xl.
Ac. Hydrochlor. Dil., . . ʒ ijss.
Glycerini, ... ʒ v.
Succi Limonis, ... ℥ iv.
Aq. Aurantii Flor., q. s. *ad* ℥ iv.
M. Sig.—Dessertspoonful with meals for the dyspeptic symptoms.

℞. Iodoformi, ... gr. xxiv.
Creosoti, ... ♏iv.
Ol. Eucalypti, ... ♏viij.
Chloroformi, ... ♏xlviij.
Alcoholis,
Etheris, . . . āā q. s. *ad* ℥ ss.
M. Sig.—10 to 20 drops on the sponge of perforated zinc inhaler, to be worn 20 minutes thrice daily. (*Brunton.*)

℞. Tinct. Belladonnæ, . . . ℥ ij.
Syr. Scillæ, ... ʒ ij.
Morphinæ Sulph., ... gr. j.
Syr. Tolutani, ... *ad* ℥ iv.
M. Sig.—Tablespoonful at bedtime, for cough and restlessness, to be repeated if necessary.

℞. Arseni Iodidi,
Strychninæ Sulph.,
Hydrarg. Chlor. Corr., . āā gr. j.
Quininæ Sulph.,
Iodoformi, ... āā ʒ ij.
M. ft. pil. no. xl. Sig.—One thrice daily as a tonic in tubercular cases. (*Mann.*)

℞. Olei Morrhuæ, ... ℥ ss.
Mucil. Acaciæ, ... ℥ ij.
Sacchari, ... ʒ ij.
Tinct. Lavandulæ Co., . . ♏xx.
Aquæ, ... ℥ ss.
M. Sig.—Teaspoonful for children. An agreeable mixture. (*Farquharson.*)

℞. Petrolei Massæ, ... ℥j.
Pulv. Cubebæ,
Pulv. Doveri, ... āā ℥ ss.
Cinchonidinæ Sulph., . . ʒ ij.
M. ft. massa., et div. in pil. no. cclxx.
Sig.—One pill every 3 or 4 hours.
(*Griffith.*)

℞. Iodoformi,
Creosoti,
Pulv. Benzoini,
Bals. Tolu., ... āā gr. j.
In pill, of such 2 to 4 daily. (*Huchard.*)

℞. Codeinæ Sulphat., ... gr. v–viij.
Ac. Hydrocyan. Dil., . . ♏xx.
Syr. Tolutani, ... ℥ij.
M. Sig.—A teaspoonful several times daily, for the cough. (*Potter.*)

℞. Creosoti (beech-wood), . . ♏vj.
Glycerini, ... ℥j.
Spt. Frumenti, ... ℥ij.
M. Sig.—For one day's use, as directed, in ℥ss doses. (*Robinson.*)

[For a Cod-liver Oil Emulsion see formula on page 471.]

Pityriasis.

Alkaline and Tonic Remedies generally control mild cases, together with baths and emollients; the more severe ones requiring constant envelopment in oil, as Linseed or Cod-liver Oil (Bulkley). **Mercury,** in obstinate cases, Donovan's solution of Arsenic and Mercury, is highly successful (Wa); the yellow Iodide, gr. x to ℥j of lard, or a 5 per cent. solution of the Oleate of Mercury in Oleic Acid with one-eighth part of Ether, applied by a camel's-hair brush (B); Citrine Ointment, especially when the hairy parts of the face are affected (R); an ointment of Ammoniated Mercury and Calomel is very useful in ordinary cases of dandruff or pityriasis simplex (Bronson). **Sulphur,** ʒj of Sulphur Lotum to ℥j of Vaselin applied every morning to the scalp, with sweet Almond Oil anointing at night (Jackson). **Soap,** the Liniment of Soft Soap as shampoo every morning for cleanliness, or Borax and water, or the yolks of three eggs beaten up in a pint of Limewater with ℥ss of Alcohol, all of which make good shampooing mixtures (Jackson). **Borax,** to cleanse the scalp, a saturated solution; or the Glycerite of Borax (R). **Lead,** the Liquor Plumbi, with Glycerin, equal parts of each, and two of water, as lotion for cases where there is high inflammation and abundant weeping (R). **Carbolic Acid,** 2 parts to 3 of Glycerin and water, twice daily, with the daily use of a carbolized soap, is often effectual (Wa). **Sulphides,** ℥ss of Potassa Sulphurata to Oj of Lime-water, as a lotion, or the Bareges Pomade. [See formula below.] **Baths,** frequently, and hard rubbing after shampooing the scalp; avoid stimulating food in bad cases, as well as the use of a fine-toothed comb on children's heads. [Compare SEBORRHŒA, and for PITYRIASIS VERSICOLOR, see TINEA VERSICOLOR.]

Prescriptions.

℞. Sodæ Sulphuratæ,
Sodii Carbonatis, . . . āā ʒ ij.
Axungiæ, ... ℥ ijss.
M. Sig.—*Pomade de Bareges.*

℞. Hydrarg. Ammoniat., . . gr. xx.
Hydrarg. Chlor. Mitis, . . gr. x.
Petrolati, ... ℥j.
M. ft. unguent. Sig.—Local use.

Plethora.

Aconite, is useful for affections of plethoric subjects; and is decidedly the best remedy for apoplexy in the plethoric (P). **Arsenic,** used with advantage when determination of blood to the head (Wa). **Sulphur,** as mild purgative for plethora from cessation of the menses (Wa). [Compare ABDOMINAL PLETHORA.]

Pleuritis.

Aconite, no remedy more effective prior to stage of effusion (R) [See INFLAMMATION]; the tincture in doses of ½ drop every 3 hours to a child 3 years old, for 2 or 3 days (J. Lewis Smith). **Veratrum Viride,** gtt. viij of tincture every 3 hours, with a drop added to each dose until pulse reduced or nausea (Wa); opinions differ as to whether it should be used in sthenic or asthenic forms (R). **Bryonia**, exceedingly valuable in second stage; should follow Aconite (P). **Tartar Emetic**, in early stages and young plethoric subjects, when much febrile action, small doses (gr. $\frac{1}{16}$ to $\frac{1}{4}$) may be useful (Wa). [See under INFLAMMATION.] **Digitalis**, as antipyretic (R); deranges intestinal canal (B); Aconite preferred (P); the tincture in doses of one drop every 3 hours to a child of 2 years old (J. Lewis Smith). **Potassium Iodide**, to promote absorption of effusions, steadily for a long time (R); also chest painted with Tincture of Iodine, one day on each wall alternately; may be washed off with Potassium Iodide, Alcohol or Ether (B); as a diuretic to remove effusion (Clark). **Iodine**, also as injections, with great benefit and without risk, in empyema and hydrothorax (R). **Quinine**, has abortive power, increased by combination with Morphine (gr. xv + gr. ss); also as restorative tonic in low-type cases (B). **Opium**, cannot be too highly extolled (P); is especially beneficial; gr. ss of Morphine hypodermically at beginning will often cut short an attack; during the disease its effects are very beneficial; a slight physiological effect should be maintained (B); Morphine for severe pain (R). **Burgundy Pitch**, plaster externally as a mechanical support (P). **Asclepias**, the popular "pleurisy-root," is a favorite remedy in the south (W). **Pilocarpus**, in subacute cases to remove fluids (Caro); or the Pilocarpine Nitrate, gr. $\frac{1}{4}$ bis die, for children (Vigier); is too depressing and therefore unsafe (Smith). **Sodium Chloride**, ʒss in ℥j of water, flavored with Liquorice, in tablesp. doses every 3 hours, often very useful in causing absorption of pleuritic serous exudations; but is contraindicated when exudation is purulent (Br). **Bloodletting**, by cups or leeches, useful by reason of counter-irritation produced, and to relieve pain, only in robust sthenic cases (B). **Blisters**, often greatly abused; are harmful during inflammatory stage (B). **Poultices**, large, hot, and frequently renewed (R). **Water**, cold wet-pack to chest probably better than a hot one, pinned tightly to limit movement of chest-walls (B). **Thoracentesis**, by aspiration, if the quantity of fluid seriously embarrasses respiration. [For CHRONIC PLEURISY see EMPYEMA, also compare HYDROTHORAX, PLEURO-PNEUMONIA.]

Prescriptions.

℞. Potassii Acetat., ... ʒj.
Infusi Digitalis, . q. s. *ad* ℥iv.
M. Sig.—Teasp. every 3 hours to a child of 4 or 6 years, in the second stage.

℞. Morph. Sulphat., ... gr. j.
Tinct. Aconiti, ... ♏xxiv.
Liq. Potassii Citratis, . . . ℥ij.
M. Sig.—A teasp. every 3 hours.

Pleurodynia.

Cimicifuga, curative when rheumatic, valuable in sympathetic cases from irritability of uterus (P); or uterine derangements (R, Wa). **Croton Oil**, in obstinate pleurodynia especially when blackened fæces (R). **Belladonna**, plaster or liniment; the latter generally best (R). **Chloral**, made liquid with equal weight of Camphor, rubbed in gently, often affords instant relief in severe pleurisy (R). **Sodium Salicylate**, gr. xv–xx, every 2 or 3 hours, useful in most cases (Hughes). **Ether**, as spray, sometimes immediately and permanently removes the pain (R). **Opium**, liniment rubbed in after warm fomentations (Wa); or a hypodermic injection of Morphine (R). **Iodine**, as liniment painted on the chest, often relieves where mustard fails (R). **Blistering**, often successful when other means fail; sometimes strong vesication necessary (R). **Rest**, is important and may be obtained by strapping the affected side with strips of adhesive plaster. **Poultices**, very hot, followed by application of lint and oil-skin; Belladonna Liniment generally better (R). **Mustard**, as a poultice, is generally efficient, and can be renewed when pain returns (R). [Compare NEURALGIA, MYALGIA.]

Pleuro-Pneumonia.

Bryonia, often of great service; limits effusion and assists absorption (P). **Carbolic Acid**, a 2 per cent. solution injected parenchymatously, once or twice a day, has had remarkable success (B). **Sanguinaria**, as a contra-stimulant (P). **Turpentine**, as a fomentation (P). **Arnica**, the tincture in doses of ♏x every 3 or 4 hours, very useful in controlling the heart's action (Wa). **Pilocarpine**, gr. ss, or ʒij of the Tincture of Jaborandi, benefits cases of pleuro-pneumonia (Wa). [Compare PNEUMONIA.]

Pneumonia.

Aconite, gives good results in catarrhal and fibrinous forms (B); has marked effect (R); very valuable in first stages (P); in several cases it apparently cut short the attack (Wa); to reduce circulation either Aconite or Veratrum Viride, until pulse is impressed (Da C). **Veratrum Viride**, valuable (P); in the very incipiency (B); opinions differ as to whether it should be used in sthenic or asthenic cases (R). **Bryonia**, when pleural complications (P). **Phosphorus**, especially when typhoid symptoms; approved by Fleischmann (R). **Belladonna** is useful in the first stage (P); Harley esteemed it highly in pneumonia (Wa); as an adjuvant to Digitalis in infantile pneumonia, to soothe the irritable nervous system and curtail superabundant secretion (Brown). **Tartar Emetic**, formerly given in large doses; now abandoned; small doses may be useful, but should be used with care, lest depression ensue (B); at commencement with alcoholic stimulants, if patient weak (R); may benefit young, robust subjects (Wa). [See PLEURITIS.] **Sanguinaria**, as a contra-stimulant, when fever has abated, and graver symptoms have amended (P). **Iodides**, no remedy more efficient; Ammonium Iodide with Arsenic, to prevent caseation of inflammatory products (R); Ethyl Iodide, gtt. v–xx ter die by inhalation, very valuable in catarrhal form (B); Sodium Iodide is useful in catarrhal pneumonia (Da C). **Ipecacuanha**, the wine in infantile pneumonia, should never be dispensed with, as it promotes expectoration, controls hemorrhage and regulates secretion (Brown). **Senega**, in advanced stages as expectorant, when cough is dry, irritating and painful, tightness and oppression of chest (P). **Opium**, or Morphine by injection, sometimes needed for severe pain (R); Opium is very desirable in many cases, relieves the symptoms and arrests delirium (Wa). **Copper Acetate**, Kissel regards it curative; under it the mortality was only 4$\frac{3}{10}$ per cent. **Ammonium Carbonate**, at crisis for depression; give in Infusion of Senega (B) [See formula below]; is useful as expectorant late in disease when lung tissue breaks down (Da C). **Digitalis**, of doubtful value; may be useful for high temperature, ischæmia, and low tension of vessels (B); as case goes on and circulation is to be further controlled, Digitalis is indicated (Da C); the best agent to slow the heart in infantile pneumonia, with Belladonna as an adjuvant (Brown). **Antipyrin**, to reduce pyrexia; is decidedly more serviceable in pneumonia than Quinine (Wa); gr. xv several times a day, or 3 hourly doses each of gr. xxx, then stopping until temperature rises again (R). **Stimulants**, in asthenic cases, those of malignant type, and those occurring in aged people (Wa). **Ammonia**, the Aromatic Spirit as substitute for Ammonium Carbonate, in doses of ʒss in simple elixir (Da C). **Turpentine**, as stimulant at crisis (B). **Serpentaria**, with Ammonium Carbonate in low types, as a stimulant about the crisis. **Quinine** or **Salicylic Acid**, to reduce temperature (R); Quinine as a tonic in cases which are asthenic from the first (P); in conjunction with Aconite and Veratrum, gr. viij–xij daily at start, is beneficial (Da C). **Blisters**, useful at very beginning only, or at crisis of disease, harmful in inflammatory stage (B); to lessen the pain, but should be used in moderation (R). **Wet-pack**, hot, tightly pinned to limit motion of chest-walls (B). **Poultices**, encircling whole chest in children (R). **Diet**, farinaceous, mucilaginous drinks, and rest in warm room (R).

Prescriptions.

℞. Tinct. Veratri Viridis, . . ♏xl.
Spt. Ætheris Nitrosi, . . ʒvj.
Liq. Potassii Citratis, . . ʒivss.
Syr. Zingiberis, . . q. s. *ad* ℥vj.
M. Sig.—A tablesp. every 3 hours, in the early stage. (*Da Costa.*)

℞. Sodii Iodidi, ... ʒjss.
Morphinæ Sulph., ... gr. ss.
Elixir Simplicis, ... ℥ij.
M. Sig.—Teasp. thrice daily with blisters over the apex, in catarrhal pneumonia. (*Da Costa.*)

℞. Ammonii Carbonat., . . . gr. xl.
Infusi Serpentariæ, . . . ℥iv.
M. Sig.—A teasp. every 3 hours, as a stimulant about the crisis. (*B.*)

℞. Potassii Iodidi, ... ʒj.
Ammonii Chloridi, . . . ʒjss.
Mist. Glycyrr. Comp., . . ℥vj.
M. Sig.—Tablesp. 4 times daily, to promote absorption, together with blisters to the chest. (*Univ. Penna.*)

℞. Tinct. Aconiti, ... ♏xxiv.
Tinct. Opii Camphorat., . ʒij.
Liq. Ammonii Acetatis,
Syr. Zingiberis, . . . āā ℥ss.
Aquæ, ... q. s. *ad* ℥vj.
M. Sig.—A tablesp. every two hours, after free catharsis by Hydrarg. Chlorid. Mite. (*Ripley.*)

Polypus.

Sanguinaria, has been employed as snuff for nasal polypi (P); with doubtful benefit (W). **Tannin,** finely powdered, as snuff blown daily into nostrils through a quill, is especially adapted to the soft and gelatinous varieties; while it has apparently no effect on the healthy mucous membrane, it causes the complete withering of the polypus (Wa). **Zinc Chloride,** has been injected interstitially with success in a case of naso-pharyngeal polypus (Barthélemy). **Iron,** a solution of the Chloride is advised as an interstitial application (Auger). **Acetic Acid,** glacial, injected into the body of the tumor, will cause it to shrink up and to drop off in a few days. **Alum,** in powder, applied to point of origin to prevent recurrence (D). **Surgical,**—a nasal polypus should be seized with polypus forceps and twisted off at the neck; it may be removed through the mouth or the nostril; in a few cases the nostril must be dilated with a speculum, or the ala slit to give access to root of tumor (D).

Poultices.

Poultices and **Fomentations** are simply local baths utilizing warmth and moisture, relaxing the tissues and relieving pain. If applied early they will check inflammation, or assist the evacuation of pus when suppuration has set in. Poultices should be applied thick (thin in peritonitis), as hot as possible, covered with cotton wool, and frequently changed; large at onset, very small after maturation. Belladonna and Glycerin, partes æquales, smeared over tissues under a poultice, aid the latter greatly, also Tinctura Opii, especially where skin is broken. Linseed-meal or Oatmeal, Starch, Bread, Bran, are best in the order mentioned; add meal to boiling water, stir and spread quickly on warm linen. Charcoal under the poultice, when foul sores are being treated.

An excellent method of preparing poultices is to make a lot of bags of various sizes, and of the fabric known as "Swiss," filling each one half-full of the Linseed meal or other agent employed, before sewing up its open end. When wanted for use, one of these bags is submerged in boiling water for a few minutes, and on taking it out the meal is found to have swelled so as to fill the bag, which should then be squeezed enough to rid it of the superfluous water, laid on the part and covered with oiled silk and a bandage. If too hot, will scald the part.

Fomentations. Flannel should be wrung very dry out of boiling water, applied and covered with oiled silk. Spongio-piline, a fabric composed of sponge and wool, coated with india-rubber, is an excellent vehicle for the application of warmth and moisture. The inner surface is moistened with hot water; and its utility may be increased by sprinkling the moistened surface with charcoal or yeast; or by saturating it with any desired lotion or liniment.

Pregnancy, Disorders of.

Mercury, a few grains of blue pill to correct clay-colored stools (L). **Iodine**, the tincture internally for cardialgia (Wa). **Aloes**, have cured piles in pregnancy, by removing constipation; cautiously (P). **Alum**, **Tannin or Catechu**, in medicated pessaries for vaginal leucorrhœa (L). **Castor Oil**, an excellent laxative (P); to clear out the bowels in diarrhœa (L). **Cocculus Indicus**, when intestines much distended with flatus, and frequent desire to urinate from flatulent pressure on bladder (P). **Bismuth**, **Calumba** and **Antispasmodics**, with minute doses of Opium, for gastrodynia and pyrosis (L). **Potassium Bromide**, with Chloroform, as an antispasmodic in dyspnœa (L). **Sumbul**, is invaluable in restlessness; ♏ xxx–xl of tincture with a little Chloric Ether, giving quiet nights for a long time (P). **Galla**, Unguentum Gallæ cum Opio, the best local application to hemorrhoids, also fomentations with sponges wrung out in very hot water, to relieve pain (L). **Digitalis**, in infusion, very beneficial in albuminuria (L). **Potassium Acetate**, with Basham's mixture (Liq. Ferri et Ammonii Acetatis), when albuminuria with anæmia. **Calcium Phosphate**, believed to exert an influence on the fœtus if administered during pregnancy, so that mothers who have borne only rachitic or scrofulous children will bear healthy ones (W). **Berberine**, found very useful in the periodical neuralgiæ of pregnancy, even in cases in which Quinine had previously failed (Maclagan). **Camphor** Liniment, for lumbar pains (Wa). **Senna**, the Confection proves a mild and efficient purgative in the constipation of pregnancy (Wa). **Milk-diet**, for albuminuria of pregnancy the best remedy, if strictly carried out (Parvin). **Injections**, must be used carefully, even tepid water often induces uterine contractions (L). [Compare Vomiting of Pregnancy, Ptyalism, Albuminuria, Nephritis, Nervousness.]

Prolapsus Ani.

Nux Vomica, or Strychnine, especially when in children, with constipation; in the latter event add Nux Vomica to a purgative, as Tincture of Rhubarb (R, P); Strychnine hypodermically, gr. $\frac{1}{12}$ for an adult every 48 hours, ¾ inch from anus and parallel to rectum, into the cellular tissue; generally requires 4 to 8 injections (Weber). **Piper**, the Confectio Piperis in doses of gr. lx to cxx, persevered in for 3 or 4 months, in chronic, weak subjects (Wa). **Sulphur**, has a beneficial effect in addition to its laxative value (R). **Alum**, in solution, gr. vj to the ℥ (R). **Ice**, locally, when parts inflamed (R). **Ergot**, the fluid extract injected into the perineum, is followed by immediate relief (Vidal). **Ferrous Sulphate**, ʒj to ℥viij aquæ, of which one-third by enema twice daily. **Podophyllin**, in small doses for rectal prolapse in children (P). **Tannin**, by injection to restrain the prolapsus (R). **Hydrastis**, by enema, or as a lotion (P).

Prolapsus Uteri.

Cimicifuga, to prevent miscarriage in prolapsus uteri (R); has a remarkable effect upon the uterus (P). **Astringents**, as Decoctum Quercus, Decoctum Gallæ (Wa); or Pomegranate bark (P). **Tannin**, as Catechu, Kino, Rhatany. **Alum**, a solution, gr. vj ad ℥j (R); lb. j ad Cj aquæ, as hip-bath, should also be passed well up vagina (Wa). **Ice**, locally when parts inflamed (R); applied to the spine (Wa). **Pessaries**, in any form, are of but temporary benefit, and in the end positively detrimental (E); but many cases cannot be treated without mechanical support of some kind.

Prostate, Hypertrophied.

Alkalies, for the cystic irritation with acid urine; great benefit from Liquor Potassæ, or Citrate and Acetate of Potassium (B). **Triticum Repens**, benefit follows its use in the prostatic enlargement of old men (Sir H. Thompson). **Ammonium Benzoate**, for the cystitis, urine alkaline (B). **Ammonium Chloride**, is occasionally useful, gr. xv–xxx, 3 or 4 times daily (Wa). **Iodine Injections**, through rectal walls (B); a weak ointment applied by rectum (Wa). **Iodine**, has been tried in all forms, but is of no value (Thompson). **Iodoform**, as suppository in rectum, has proven of great value (B). **Colchicum**, in persons of a gouty diathesis (Wa). Medicine is not likely to have any control over this condition, which is a simple hypertrophy. [Compare CYSTITIS.]

Prostatitis.

Cantharides, gtt. j of tincture (5 may be required) 3 or 4 times a day (R). **Triticum Repens**, is found to be of benefit (Sir H. Thompson). **Urino-Genitals**, especially Turpentine, Cubeb, Juniper, Cantharis (B); Cubeb, in doses of gr. xx daily, is found of much benefit (Wa); Buchu relieves (P). **Silver Nitrate**, a solution (gr. v–x ad ℥j), applied to the prostatic urethra in chronic prostatitis, may be useful (Wa). **Blisters**, in chronic prostatitis, a small blister on each side of the raphé of the perineum, kept open 4 to 6 weeks, has given the best results (Wa). **Tonic** medicines and regimen should be prescribed (Wa). **Hot Injections**, to relieve pain (R). [Compare PROSTATORRHŒA.]

Prostatorrhœa.

Iron, the Tincture of the Chloride, when there is much debility (B); chalybeate tonics with Quinine and Strychnine (Gross). **Atropine**, indicated in all cases, with Potassium Bromide (Gross). **Potassium Bromide**, when irritability and excitement (B); indicated in all cases (Gross). **Lead**, injections of Goulard's Extract, ʒj to ℥x of water, night and morning, for 10 minutes at a time (Gross). **Ergot**, when relaxation exists (B). **Bougie**, methodically introduced, is one of the best local measures (Gross). **Hydrastis**, locally applied, a useful medicine (B). [Compare PROSTATITIS.]

Prurigo.

Antipyrin, as a symptomatic remedy, is efficient in true prurigo. **Alkaline Baths**, followed by a carbolized ointment, and Carbolic Acid internally, are of value in the papular eruption known as prurigo (Bulkley). **Sulphides**, Potassa Sulphurata, with Tar and Benzoated Lard, as ointment in genuine prurigo (R). **Arsenic**, in doses of ♏v of Liquor Arsenicalis thrice daily and gradually increased, has exercised a more or less powerful influence (Wa); has only a moderate effect (Bulkley). **Belladonna**, controls cases which have resisted ordinary treatment (B). **Carbolic Acid**, locally and internally, is especially serviceable in prurigo senilis (B). **Mercury**, the Bichloride gr. xx, with Ammonium Chloride, gr. xxx, in Oj of pure water, as lotion in prurigo contagiosa, "army-itch;" nothing equal to it (White). **Borax**, a saturated solution in Rose-water locally (R); gr. v–x to ℥j of hot water for pruriginous eruptions on mucous membrane of vulva and vagina (R). **Galvanism**, when prurigo is referable to alterations in the cutaneous nerves (B). **Tonics**, are required, nerve-tonics as well as general ones, Cod-liver Oil, Quinine, Strychnine and Phosphorus (E. Wilson). **Quinine**, in large doses, gr. v–x, will control violent exacerbations (Wilson). **Baths**, the Turkish, frequently repeated, with inunction of the skin, may be regarded as curative in most cases (Wilson). [Compare PRURITUS.]

Pruritus.

Cocaine, in 5 per cent. solution or oleate, is by far the most efficient of all antipruritics; relieves the itching of scrotal eczema, pruritus ani et pudendi, and especially in lesions of the epidermis where the oleate or solution can penetrate at once to the true skin. **Resorcin**, in solution locally, gives marked relief, lasting for several hours, in the majority of cases. **Tumenol**, as tincture, is used locally with almost universal success (Neisser). **Menthol**, seems to be of marked value in almost all cases of pruritus, from whatever cause (Squibb). **Antipyrin**, internally as a symptomatic remedy against itching, is promptly efficient in nervous pruritus, true prurigo, urticaria, erythema, pemphigus vulgaris and lichen ruber. **Alkaline Baths**, locally, followed by the application of Carbolic Acid Ointment, give great comfort in all forms of pruritus (Bulkley); Sodium or Potassium Carbonate preferred (Tr); in solution locally, ʒiij ad ℥iv (B). **Carbolic Acid**, with Glycerin, as lotion to the itching surface, gives great relief (Bulkley); internally and locally in pruritus senilis (B); a one per cent. solution as lotion in pruritus ani (R). **Mercury**, strong solutions of the Bichloride, Black or Yellow Wash or Mercurial Ointment, in the itching of skin affections (R): Yellow Wash is one of the most efficient applications for pruritus ani. Solutions of the Bichloride are very useful applications in pruritus vulvæ et ani (Tr); for pruritus vulvæ a lotion of the Bichloride 1 to 2500 parts of water, with Alum and Starch, is recommended (B): Calomel ʒj to ℥j of Lard, as ointment, is the best application, except in the pruritus of urticaria; very useful in pruritus ani, less so in pruritus pudendi (R): the Oleate, a 5 per cent. solution in Oleic Acid with one-eighth part of Ether, applied by a camel's-hair brush, in pruritus ani et pudendi (Marshall). **Alum**, a strong solution is very useful for pruritus vulvæ (Tr). **Hydrocyanic Acid**, diluted as lotion, often very serviceable; may be prescribed in solution with Borax (B); or Laurel-water as lotion, especially in pruritus senilis (P). **Potassium Cyanide**, ʒj to Oj of water, as lotion for pruritus of various kinds when the skin is unbroken (R); as ointment or solution, if strong enough, relieves greatly, but must be used with caution (B); or ♏xxx of the dilute Hcy Acid of the Br. Ph. in ℥j of water or Glycerin, may be used instead (R). **Silver Nitrate**, a solution (gr. xx ad ℥j), painted over the affected parts in pruritus vulvæ, is very effective (B). **Tobacco**, is an effective but dangerous application (B). **Iodoform**, as ointment, ʒj ad ℥j Adipis (R). **Iodine**, for itching of the nose or inner canthus, sneezing, etc., Iodine inhalations have a marked effect (R). **Arsenic**, for itching of the nose accompanying asthmatic symptoms (R). **Benzoin**, the compound tincture painted on the skin, for the itching of eczema, urticaria, etc. (R). **Boracic Acid** makes an excellent lotion in pruritus pudendi, a teasp. to the pint of hot water (R). **Borax**, gr. v–x ad ℥j hot water (R). [See PRURIGO.] **Balsam of Peru**, is a very good application in pruritus ani, scabies, and many other forms of itching (Auerbach). **Camphor**, with Chloral, rubbed together, makes a liquid which, added to Vaselin, makes an ointment which is powerfully antipruritic (Bulkley); added to dusting powders, allays heat and itching of eczema and intertrigo (R). **Chloroform**, as ointment to allay itching of skin diseases. **Gelsemium**, ♏xv of the tincture every half hour, up to ʒj in all, for itching which is out of proportion to the cutaneous lesion (Pelcher). **Lead Lotions**, to ease the itching of urticaria, pruritus pudendi, etc., especially when the mucous membrane is red and excoriated (R). **Piperazin**, gives immediate relief in the pruritus of the uric acid diathesis. **Salicylic Acid**, as ointment, in pruritus ani et vulvæ (R). **Sodium Salicylate**, in 15-grain doses by mouth every four hours, will greatly relieve pruritus vulvæ, when due to diabetes (G). **Tar**, as ointment, is strongly recommended (Tr): for general pruritus, if no cause can be found, the two best remedies are Tar and Sulphur, as lotion or bath (Sparks); ointments containing Tar give relief in many instances (Bulkley). **Sulphur**, may be employed as a bath, Potassa Sulphurata, ℥ij ad C xv of hot water (Sparks); or the alkaline sulphites locally (Wa); the Iodide of Sulphur externally and internally, in pruritus senilis (Wa). **Chlorine**, the Liquor Sodæ Chloratæ, diluted, a useful application in pruritus ani (Wa). [Compare ECZEMA, ERYTHEMA, LICE, PEDICULI, PRURIGO, SCABIES, URTICARIA.]

Prescriptions.

℞. Hydrarg. Chlor. Corr., . . gr. j
Pulv. Aluminis, ... gr. xx.
Amyli, ... ʒ jss.
Aquæ, ... ℥ vj.
M. Sig.—Apply locally. (*Goodell.*)

℞. Acidi Hydrocyanici Dil., . ʒ ss–j.
Infusi Altheæ, ... ℥ v–viij.
M. Sig.—Lotion. (*Fox.*)

℞. Potassii Cyanidi, ... gr. xv.
Aquæ Laurocerasi, . . . ℥ viij.
M. Sig.—Lotion. (*Anderson.*)

℞. Acidi Benzoici, ... gr. cx.
Ol. Caryophylli, ... gtt. xl.
Alcoholis, ... ʒ ijss.
Solve et adde—
Cerati Simplicis, ... ℥ viij.
Balsami Peruviani, . . . ℥ j.
M. ft. unguentum. Especially good for scabies, but may be used for any pruritus.

℞. Acidi Hydrocyan. Dil., . . ʒ ij.
Sodii Boratis, ... ℥ j.
Aquæ Rosæ, ... ℥ viij.
M. Sig.—Lotion. (*Fox.*)

℞. Potassii Cyanidi . . . . gr. vj.
Pulv. Cocci, ... gr. j.
Ung. Aquæ Rosæ, ... ℥ j.
M. Sig.—Ointment. (*Anderson.*)

℞. Gummi Camphoræ,
Chloralis Hydratis, . . āā ʒ j–ij.
Rub together until liquefied,
then add slowly, with friction,—
Unguenti Aquæ Rosæ, . . ℥ j.
Sig.—Ointment for itching.
(*Bulkley.*)

℞. Acidi Carbolici, ... ʒ ij.
Glycerini, ... ℥ j.
Aquæ Rosæ, . . q. s. *ad* ℥ viij.
M. Sig.—Lotion for pruritus.

Psoriasis.

Ichthyol, is a very efficient application. **Thiol**, is probably a better remedy than Ichthyol; the dry form, used as a dusting powder, is remarkably efficient (Squibb). **Aristol**, is an excellent application. **Arsenic**, at first apparently aggravates, but soon heals the disease (R); must be persistently used for a long time (B); exercises a powerful influence (Wa); maximum dose ♏v Liquor Arsenicalis ter die, never on empty stomach (R). **Mercury**, in patches of obstinate psoriasis, especially of hands, even when not syphilitic; Calomel and Mercuric Nitrate ointment may be mixed and Tar ointment added (R). **Lappa Major**, a tincture of the seeds in whiskey, used by tablespoonful doses, cured several cases of long standing (Reiter). **Carbolic Acid**, 1 to 4 of lard, as ointment (Wa). **Mezereon**, a useful adjunct (Wa). **Sulphur**, internally (R); a solution of Potassa Sulphurata in water, is excellent in chronic psoriasis (B); not in acute (R). **Sulphur Iodide**, externally and internally, in doses of gr. j–vj used with great advantage (Wa). **Silver Nitrate**, occasionally in psoriasis of tongue and buccal mucous membrane; if syphilitic, mercurials best (R). **Chrysarobin**, has the most decided effect on psoriasis, ʒss–ij ad ℥j of ung. aquæ rosæ; often irritates, and should be employed at first with caution (Bulkley). **Nitric** and **Nitro-Hydrochloric Acids**, when symptomatic of imperfect digestion and assimilation (B). **Phosphorus**, as substitute for Arsenic (B). **Coptis**, has reputation in New England (B). **Copper Sulphate**, applied solid to spots (R). **Lead**, the ointment of the Iodide (B). **Tar**, painted on, in obstinate cases (R). **Oils**, Cod-liver Oil internally and locally, is the sheet-anchor, especially when of strumous origin (B); oils and fats to lubricate skin, with warm baths (R). **Diet and Hygiene**, nourishing diet, frequent small quantities of raw vegetables, Cod-liver Oil for growing persons, especially when stale fish the cause. Rest and change for overworked subjects. Daily baths and cold sponging. Free, open-air exercise is also most useful. Warm or tepid soft-water baths at night, with use of pure soap.

Pterygium.

Silver Nitrate, locally, especially when pterygium with catarrhal conjunctivitis (Wa). **Treatment** unavailing, benefit seldom derived from any operation (C). **Arlt's Operation**, the most satisfactory; cut away as little tissue as possible, dissect cleanly, close with suture (Green).

Ptosis.

Veratrine, gr. x in ʒij of Sulphuric Ether and ℥j of Alcohol, brushed over the eyelids, brows and temples every morning, till a slight burning sensation is produced; conjoined with the use of electricity (W). **Ergot**, aqueous infusion as collyrium (Wa). **Electricity**, the constant current may often relieve recent cases (C). **Operation** for shortening the lid, by removing an elliptical piece of skin and subjacent muscle (C); is not advisable unless the ptosis is nearly or quite complete, and of great inconvenience.

Ptyalism.

Iodine, as gargle, ʒij of tinct. ad ℥viij aquæ (R); is worthy of trial (Wa). **Acids**, as astringents, small medicinal doses (R). **Sulphuric Acid**, internally and as a gargle with Decoctum Cinchonæ, of great benefit in mercurial ptyalism (Wa). **Potassium Chlorate**, in simple or mercurial ptyalism (R); in the latter form ʒj ad ℥vj aquæ as mouth-wash, and internally in teasp. doses, 4 or 5 times daily (St). **Belladonna**, very effective in mercurial ptyalism, and that of pregnancy; gtt. v–x, or Atropine gr. $\frac{1}{120}$ to $\frac{1}{100}$ every 4 to 6 hours (B): Atropine hypodermically (R); should be useful (W). **Tannic Acid**, in mercurial ptyalism is an excellent gargle, ʒj of Tannin to ℥ij of Mel Rosæ, and ℥vj of water (B). **Alcohol**, diluted, as a gargle (R). **Potassium Iodide**, sometimes beneficial in mercurial ptyalism, but often aggravates it (R).

Prescriptions.

℞. Tinct. Myrrhæ, ... ʒj.
Aquæ, ... ℥vj.
M. Sig.—Mouth-wash.

℞. Sodii Boratis, ... ʒij.
Pulv. Myrrhæ, ... ʒj.
Aquæ, ... ℥vj.
M. Sig.—Mouth-wash or gargle.

Puerperal Convulsions.

Aconite, one of the best agents (P); gtt. j–ij of tinct. every 10 or 15 minutes for the first hour, then at longer intervals (B). **Belladonna**, the tincture internally with Atropine hypoder., of verified utility (P). **Veratrum Viride**, in ʒss doses of fluid extract every 15 minutes, to nausea, invaluable (R); the fl. ext., in doses of ♏viij–x hypodermically, may be repeated in half-hour with Morphine, or ♏x by enema, promptly efficient in the worst cases (Elmer); a very bad case cured by 20-minim doses every hour for 5 days (Dunn); the worst case seen in my 30 years' experience, after 14 seizures was promptly cured by a hypodermic injection of ♏iv of Norwood's tincture in a little water (Etheridge). **Pilocarpine Nitrate**, gr. $\frac{1}{8}$ hypodermically every 2 hours, very successfully used in several cases (Finniss). **Potassium Bitartrate**, administered for a month prior to confinement, in quantity sufficient to bring about free action of kidneys and bowels, will certainly prevent puerperal convulsions (Anderson). **Opium** is apt to induce eclampsia, unless its use be preceded by free purgation or venesection (Idem); as Morphine hypodermically, the most important agent for cure of uræmic convulsions (B); with the lancet, sometimes required (P). **Anæsthetics**, especially Chloroform (R); utility unquestionable, when not due to cerebral hemorrhage (B). **Chloral**, full doses (gr. xx–xxx) every 2 hours, may arrest (B); a remedy of the greatest value, a full dose, gr. xx–xxx, before proceeding to one of the Bromides (Playfair, Barnes). **Amyl Nitrite**, by inhalation (B); may cause alarming hemorrhage (W). **Ice**, to the head (R); and mustard poultices at same time to the feet (Wa). **Venesection**, by far the most efficient measure (Wallace); when great cerebral congestion and vascular tension, shown by a livid face, a full and bounding pulse, and strong pulsation in the carotids (Playfair).

Puerperal Disorders.

Cimicifuga, in puerperal hypochondriasis, and depression (Wa, P). **Opium**, either alone or with alteratives, highly serviceable in puerperal intestinal irritation; a few drops of tincture effectually arrests the diarrhœa (Wa); when shock and marked exhaustion, a moderate dose is of benefit (L). **Castor Oil**, undoubtedly the best laxative (L); purgatives generally are not required, Castor Oil the very worst (Fordyce Barker); action uncertain (Parry). **Rhubarb**, or enemas, best means of stimulating bowels after fourth day (L); gr. xx–xxx in some aromatic water a good aperient (Wa). **Aliment**, in puerperal state should be easy of digestion and sustaining (L). **Catheter**, necessary often for several days when bladder paralyzed, if warm water lavements fail to excite (L). **Water**, tepid sponging of external parts, vaginal washings daily with warm water, with $\frac{1}{100}$ part Carbolic Acid (L). [See AFTER-PAINS, HEMORRHAGE, LABOR, LACTATION, MASTITIS, NIPPLES, PHLEGMASIA ALBA-DOLENS, etc.]

Puerperal Fever.

Aconite, drop doses every one or two hours steadily, with an occasional dose of Castor Oil, and repeated hot poultices or Laudanum fomentations, the most successful treatment, even in the worst cases, but useless if not promptly efficient (P). **Veratrum Viride**, is used with great benefit in most cases (Barker). **Opium**, for wakefulness and delirium (B); a very valuable remedy, tending to allay pain, and reduce excitement of the nervous and vascular systems (Wa). **Alkaline Sulphites**, especially valuable in early stages, internally and locally; gr. xv–xxx of Magnesium or Calcium Sulphite every 2 or 3 hours, with injections every day (Wa). **Stramonium**, when cerebral excitement (P). **Potass. Permang.**, gr. ¼–j ter die, has been given with benefit (B). **Alcohol**, freely used, until all evidence of sepsis subsided, caused recovery in one of the most desperate cases of puerperal septicæmia, of three weeks' standing, with temp. falling to 95° and rising to 107° (Hills). **Calumba**, preferable to Cinchona (P). **Quinine**, only large doses are useful: gr. v–xx every 4 hours (B); reduces temperature (P). **Turpentine**, when depression of vaso-motor nervous system, cardiac weakness and tympanitic distention of abdomen (P, R). **Resorcin**, is much used in Vienna by Braun; gr. xl repeated p. r. n. **Antiseptic Injections** into uterus, opposed very strenuously by many of our best men. [See N. Y. Med. Rec., 1884, p. 14. For antiseptic treatment by Hydrarg. Bichlor., see Dr. Garrigues in N. Y. Med. Rec., of December 9, 1883, and N. Y. Med. Jour. of March 1, 1884, and the discussion in the N. Y. Academy of Medicine, reported in the N. Y. Med. Record of January 5 and February 16, 1884, et seq.] **Water**, hot fomentations frequently to parts, a valuable preventive. **Rest**, and quiet but attentive nursing; frequent liquid nourishment. **Warburg's Tincture**, is more efficient than the largest doses of Quinine in cases of puerperal malarial fever, ℥ss every four hours until fever abates, then in diminishing doses to ʒj–ij, until convalescence is established (Fordyce Barker). Compare PUERPERAL PERITONITIS.]

Puerperal Mania and Melancholia.

Stramonium, will allay cerebral excitement, and soothe nervous system; when delirium wild and furious, but intermittent; tendency to suicide or to destroy the child; ♏x–xx of tinct. every 3–4 hours (P). **Hyoscyamus**, in milder cases; nervous system greatly excited (P). **Aconite**, in puerperal mania with high fever, restlessness; speedy and marked success if given soon after chill (P). **Cimicifuga**, has cured (B); its effects are truly remarkable in the mania and hypochondriasis of puerperal state (P). **Chloral**, often alleviates symptoms (B); to produce sleep (Wa). **Potassium Bromide**, in sthenic cases (R); its effects are very variable (Wa). **Anæsthetics**, Ether inhaled in violent paroxysms of mania (B). **Tartar Emetic**, in frequently repeated doses (Wa). **Quinine**, when much weakness; skin cold and sweating (B). **Chalybeates**, Tinct. Ferri Chlor. (♏v–xx) in anæmic form (B). **Opium**, cautiously (B); gives the best results in such doses as may be necessary to allay irritation and procure sleep (Wa). **Poultices**, hot fomentations, enemas, or gentle laxatives; nutritious and stimulating diet. Lochia should be watched (P). **Weaning**, imperative in melancholia; not so in acute mania.

Puerperal Peritonitis.

Aconite, has cured cases of the usual type (P). [See under PUERPERAL FEVER.] **Cimicifuga**, especially in rheumatic form, has remarkable effects (P). **Opium**, its curative power in this, one of the best established facts in therapeutics (B); is good, but Aconite often better (P); especially valuable in adynamic cases (Wa): the drug of all others to be relied on (Godson). **Turpentine**, as stimulant ♏x frequently repeated; better than Alcohol (B); by enema, also hot turpentine epithems may be used with advantage (Wa). **Quinine**, in considerable doses, with or without Opium (B); gr. x–xx twice daily as an antipyretic (Wa). **Antimony**, as Tartar Emetic, gr. $\frac{1}{16}$ to $\frac{1}{8}$ every hour to shorten attack and render it more mild (R). **Cathartics**, advised by many, prohibited by as many; evidence is in favor of mild aperients combined with Dover's powder or Hyoscyamus (Wa). **Poultices**, hot, of very great value (B). **Water**, Ice in mouth or swallowed, hot fomentations to abdomen; in some cases cold compresses best. [Compare PUERPERAL FEVER.]

Pulse.

Aconite, for a quick, resisting pulse (P); a moderate dose, while it makes the pulse less frequent, renders it fuller, stronger and less compressible (R). **Veratrum Viride**, reduces febrile heat with abnormal rapidity of pulse (P). **Veratrine**, pulse at first quick and strong, then slowed; afterward quick, weak and irregular (R). **Digitalis**, for weak, quick pulse. [Compare HEART DISEASES, etc., in this Part, also VASCULAR STIMULANTS, page 34.]

Purpura.

Sulphuric Acid, often acts happily (B). **Ergot**, has been strongly urged (R); is most useful in removing purpura (P); many cases are recorded as cured by hypodermic injections of Ergotin (Wa). **Turpentine**, has been used (R); with invariable benefit (Wa). [See HEMATEMESIS.] **Nux Vomica**, no prescription more generally useful than the Syrup of Iron, Quinine, and Strychnine (B). **Iron**, when due to anæmia; the Tincture of the Chloride (B); is preeminently the curative remedy for purpura hemorrhagica, arresting the hemorrhagic tendency in 24 to 48 hours (Pize). **Vinegar**, and water, is an excellent application by sponging over the body (E. Wilson). **Quinine**, or Huxham's Tincture of Bark, are much used (H). **Potassium Nitrate**, gr. x thrice daily in purpura simplex, used successfully (Wa). **Styptics**, as the Ammonio-ferric Alum, Tinct. of Ferric Chloride (Tr); Tannic and Gallic Acids, used in some cases (H). **Alum**, and brandy, or whiskey and water at such temperature as is not chilling, applied by sponging the body, is the best local measure (H). Wines are generally indicated (B). [Compare HEMORRHAGE, SCURVY.]

Pustule, Malignant.

Nitric Acid, strong, applied steadily (after thorough cleansing and drying) to destroy the diseased mass (D). **Bromine,** to saturate the surface (D). **Carbolic Acid,** undiluted, as caustic, or with oil, the favorite application (D). **Nitric Acid,** fuming, is the preferable caustic (Greenfield). **Quinine** and Carbolic Acid, internally, are indicated in all forms, also stimulants, as Ammonia, Ether, and Alcohol (Greenfield). **Eschar** should be promptly destroyed, to avoid contagion (R). **Excision** and cauterization demanded, when from direct inoculation; the two most successful measures (Greenfield).

Pyæmia and Septicæmia.

Quinine, large doses only (gr. xv–xx) are useful (B); supposed to diminish the temperature (R); to cinchonism, in childhood the best remedy (Wa); is probably the most useful medicine, given in full and frequently repeated doses (Haward). **Salicin,** to reduce the temperature in septicæmia and to relieve the cerebral symptoms (R). **Salicylic Acid,** has decided value (B). **Potassium Permanganate,** is given with advantage, gr. $\frac{1}{4}$–gr. j thrice daily in distilled water (B). **Boracic Acid,** a saturated solution to wounds, ulcers, etc.; also Chlorine, as disinfectant (B). **Oleum Caryophylli,** locally, also Oleum Gaultheriæ, Thymi, etc. (B) as antiseptics. **Water,** cold, as dressing. Hot better, 95°–100° F., Hamilton's immersion plan for wounds (B); stumps to be immersed in a warm bath, to avert pyæmia (R). **Sulphites,** may do some good in chronic cases, but the use of Sulphurous Acid has not given the results in man which Polli obtained from its use on animals (Haward). **Turpentine,** is a better stimulant than Alcohol (B). **Ice,** dissolved in the mouth (Wa). **Aliment,** plentiful nourishment, with wine and good ventilation, are not to be neglected (Wa); malt liquors are justly esteemed (B). **Stimulants** necessary, brandy the best (Wa). **Abscesses,** must be opened early, especially when in joints.

Pyrosis and Cardialgia.

Capsicum, in atonic dyspepsia, with heartburn and diarrhœa (P). **Nux Vomica,** of the highest possible value in atonic dyspepsia with heartburn, hiccough, regurgitation, etc.; an excellent combination is ♏v–x of the tincture with ♏xv of dilute Nitric Acid for one dose (P). **Pulsatilla,** a good medicine in heartburn of dyspepsia in phlegmatic subjects (P). **Podophyllin,** gr. $\frac{1}{10}$ night and morning in obstinate heartburn, with liver derangement (P). **Almonds,** six or eight blanched, said to relieve heartburn (P). **Diet,** lemon-juice, aërated bread, plain biscuit, etc.; but avoid new bread, much vegetable food, and pastry. [Compare ACIDITY, DYSPEPSIA.]

Rachitis.

Lime, as Lime-water, or the Carbonate, or the Syrupus Calcii Lacto-phosphatis (B); in small doses (R); the Phosphate may be advantageously combined with Cod-liver Oil (Wa). **Iron,** the Syrup of the Iodide preferred; Calcium and Ferric Phosphates excellent in combination (B); must be continued a long time (R). **Nitro-hydrochloric Acid,** as baths, gives excellent results (Wa). **Quinine,** often very valuable (P). **Aliment,** food rich in Calcium Phosphate and other phosphatic salts; oatmeal, Graham bread, etc. (B); Cod-liver Oil, the best constructive agent (B); a full animal diet (Wa); cold sponging (R).

Rectum, Diseases of.

Podophyllum, in doses of gr. $\frac{1}{20}$ to $\frac{1}{10}$ night and morning, for a child, may relieve prolapsus of the rectum (P). **Belladonna,** the extract locally in fissure (R); and irritable ulcers (P); internally and locally to remove ulcers, also excellent in burning pain following defecation, or with mercurial ointment in equal parts, for fissures and ulcers (P). **Phosphorus**, in chronic inflammation of the rectum, has been highly recommended (R). **Cocaine**, gr. xl to ℥j of Glycerite of Starch, applied by Seeley's Pile-pipe, very efficient in controlling spasm of the rectum. **Potassium Bromide**, in 5 parts of Glycerin, locally, for fissures and painful growths (R). **Iodoform**, as suppository in painful diseases, relieves greatly (R). **Pepper**, the confection, as gentle stimulant in fistula, ulcers, hemorrhoids (P). **Castor Oil**, in fissure and hemorrhoids, is commonly used as purgative (R, P). **Sulphur**, with Confectio Sennæ, in irritable rectum, is very soothing (Wa). **Stramonium**, an ointment from fresh leaves to alleviate pain (P). **Conium**, the extract in doses of gr. x to allay pain and irritability in cancer (Wa). **Purgatives**, best for proctalgia (D). **Surgical**, an incision through mucous membrane, and in severe cases to divide part of the sphincter, in ulcer or fissure; a flake of cotton should be laid in the wound, so that it may heal by granulation (D). [Compare ANUS, DIARRHŒA, DYSENTERY, RECTUM ULCERATION OF, HEMORRHAGE INTESTINAL, HEMORRHOIDS, PROLAPSUS.]

Rectum, Ulceration of.

Mercury, the Red Oxide, ʒj to the ℥j of Unguentum, as ointment in flat ulcers of rectum existing just within the anus (Coulson). **Belladonna**, the extract locally for rectal ulcers, is very efficient (P). **Carbonic Acid**, gas, per anum, is strongly advised (Wa). **Chloroform**, as ointment, in irritable ulcer of rectum (Curling). **Iodoform**, in suppository, extremely useful in painful ulceration (R); used in many cases with very satisfactory results, but in some instances poisoning occurs; hence it should be used with caution (Wa). **Phosphorus**, as an internal remedy, is highly recommended in chronic inflammation of the rectum (R). **Copper Sulphate**, with Opium, may often be used internally with advantage, and a weak solution of the same, or of Silver Nitrate, locally (Curling); the writer had a case resisting treatment for three years, in which a cure was effected by a persevering use of a pill of Cuprum Sulphate, Extract of Opium, and Quinine Sulphate. **Silver Nitrate**, gr. ¼–j combined in pill with Opium, gr. ss; and a solution, gr. x–xx to the pint, by enema (B). **Glycozone**, ℥j in ℥xij of lukewarm water, mixed immediately before using, and given by enema once daily, in ulceration and chronic inflammation of the rectum and lower gut (Edson).

Prescriptions.

℞. Cupri Sulphat.,
Morphinæ Sulphat., . . āā gr. ij.
Quininæ Sulphat., ... gr. xxiv.
M. ft. pil. no. xxiv. Sig.—One pill thrice daily. (*Potter.*)

℞. Chloroformi, ... ʒj–ij.
Zinci Oxidi, ... ʒss.
Olei Olivæ, ... ʒj.
Cerati Cetacei, ... ʒiv.
M. ft. unguentum. (*Curling.*)

Relapsing Fever.

Cathartic, a mild one at beginning (H); if jaundice or other hepatic derangement, a Calomel purgative, cautiously, lest irritation (Wa). **Potassium Citrate**, as cooling diaphoretic. **Quinine**, in moderate doses after the crisis, at least until the relapse, which will not be prevented by any amount of Quinine (Wa). **Leeches** or **Cupping**, best for headache (A). **Alcohol**, required by some patients. **Diet**, supporting, especially in third week, beef-tea, etc. **Urine**, should be watched carefully (A). [Compare TYPHUS FEVER.]

Remittent Fever.

Antipyrin or **Phenacetin**, in full dose during pyrexia, to lower the temp., is very efficient treatment, especially if conjoined with Quinine during the remission; the latter drug being too slow of action to be of immediate service in the pyrexia. **Aconite**, in hot stage, if any febrifuge is required, frequently repeated doses (B); is next in value to Quinine for high fever and headache, gtt. j of a good tincture every hour (Da C). **Quinine**, 20 to 30 grains in single dose once or twice daily till temperature is reduced, with other appropriate remedies (B); 15 to 20 grains at most (Maclean); 30 to 50 or 60 grains in severe cases of pernicious remittents several times a day without regard to exacerbation (P, B). **Warburg's Tincture**, has achieved a very high reputation, but must be used in less dosage than directed, and supporting treatment given when its sudorific action commences (Wa). **Gelsemium**, exercises a really beneficial influence; depresses temperature (B); valuable in bilious remittents of the South (Pf). **Morphine**, gr. ¼ hypodermically to abort pernicious remittent fever (B). **Purgation**, by Calomel with Jalap or salines afterwards, is very necessary during the course of the disease (Da C). **Quassia**, an excellent tonic in convalescence, combined with mineral acids (Wa). **Packing**, by wet sheet, is resorted to with advantage, except when hepatic or splenic congestion (Wa).

Retina, Affections of.

Mercury, in syphilitic retinitis is of great value; Calomel gr. j–ij with Opium gr. ¼–½ every 4 or 6 hours; also mercurial inunction till the gums are affected or the disease yields (Wa). **Potassium Iodide** and **Bromide**, in combination, in retinal hemorrhage, to promote absorption of the effused blood, and benefit the congestion (C). **Eserine**, locally to contract pupil, and diminish the amount of light admitted to the eye (Wa). **Iron**, in full doses, generally the Tincture of the Chloride, in pigmentary retinitis; seems to have a tendency to arrest the malady (C). **Leeches**, to the temple better than general bloodletting (Wa). When much local congestion present, depletion by artificial leech is almost always indicated (C). **Pilocarpus**, in detached retina and optic neuritis; has been found a very useful remedy in retinal affections generally. [Compare AMAUROSIS.]

Rheumatism, Acute.

Plans of Treatment, may be resolved into three, viz.,—(1) that by Salicylic Acid, (2) that by Alkalies, (3) that by Iron. **Salicylic Acid** or the **Salicylates**, in 20-grain doses, to not less than ʒij in 24 hours, in solution with excess of alkali, is especially suited to vigorous, sthenic subjects, whose stomachs will bear it, in whom it often effects a cure in 3 or 4 days. **Alkalies**, for flabby, fat subjects; alkaline carbonates, as Potassium Carbonate, ℥jss, every 24 hours, alone or with a vegetable acid, until the urine becomes neutral or alkaline, when it may be reduced one-half, and so maintained for some days, when Quinine or Iron may be used; if successful, this treatment brings about a cure in two weeks. **Tincture of the Chloride of Iron**, for feeble, anæmic, and nervous subjects, ♏xxx every 4 hours, with an occasional saline laxative, blisters around joints, and **Atropine** as an anodyne rather than Opium, used hypodermically in the vicinity of the affected joint (B). **Iron and Salicylic Acid** in combination, should be most valuable, but as heretofore prescribed has always made an insoluble precipitate; this is overcome by Dr. Peabody in the formula given below, which makes a ruby-red mixture, and has advantage of preventing the anæmia which results from the Acid given alone. Cardiac Complications require **Ammonium Carbonate**, in 5-grain doses frequently, also **Infusion of Digitalis** with hypodermics of **Morphine**, and a blister over the præcordium, followed by **Iron and Quinine** after the acute symptoms have subsided (B).

Aconite, very serviceable when much heat and dry skin (B); subdues pain in inflamed joints and perhaps shortens the fever (R); in small doses frequently repeated of the greatest value, and if used from the start prevents organic cardiac disease (P); not reliable as a curative agent, but is a valuable adjunct to other remedies (Wa). **Veratrum Viride**, said to be useful (R); as antipyretic, small doses, may be combined with Opium (P). **Bryonia,** has proved useful, especially for painful and stiff rheumatic joints (P). **Salicin,** gr. x–xxx every 2, 3, or 4 hours; gr. xv every 3 hours in powder mixed with water (Maclagan), or same dose of Salicylic Acid, is of great benefit; good effect generally experienced within 48 hours (R); the Acid is better than the Salicylates, but must be abandoned if not effective after 3 or 4 days (Da C). **Salol,** the great remedy, none superior (B); given in doses of 15 to 30 grains, up to ʒij in 24 hours, and continued for some time after acute symptoms have subsided; may prove toxic in large doses, with symptoms of carbolic acid poisoning. **Salophen,** is said to be equally efficient and non-toxic, ʒj–ʒjss daily. **Salipyrin,** has been employed with excellent results, in 15-grain doses every ½ hour or hour, until about ʒij have been taken, continuing with smaller doses for a long time after convalescence, to prevent relapses. **Phenacetin,** an efficient and safe antipyretic in poly-arthritis. **Phenocoll,** used for the pyrexia, with marked success. **Oil of Gaultheria,** as a substitute for Salicylic Acid, used very successfully in form of emulsion (B). **Rhus Toxicodendron,** positively invaluable in after-stage, also in subacute forms, muscular or tendinous, worse at night (P, Pf). **Hydriodic Acid,** the Syrup, in dessertsp. doses every 2 or 3 hours, the best remedy for acute and subacute rheumatism, relieving pain and swelling in 18 to 24 hours (Craig). **Cimicifuga,** excellent reports from (B); has been much used, said to quell the pain speedily (R); found very serviceable (P). **Dulcamara,** recommended especially for persons who are subject to catarrhal affections in cold and damp weather (P). **Ammonium Bromide,** a very excellent treatment, followed by Quinine; gives a very low proportion of cardiac complications; gr. xv–xx every 4 hours (Da C); disagreeable but strongly recommended (B). **Arnica,** lowers pulse and temperature, relieves articular pain and swelling, diminishes urea (P). **Trimethylamine,** ♏iv–viij in Peppermint-water, often has remarkable power in acute rheumatism and gout (B). **Spigelia Anthelmia,** rheumatic pericarditis and endocarditis; rheumatic fever with pain shifting from joint to joint (P); seems to fix the disease in certain joints, and prevent its shifting around (P). **Sulphurous Acid,** by fumigation, patient covered with blankets exposed to strong fumes, produces perspiration, sleep and relief (R). **Colchicum,** alleviates the symptoms, and shortens their duration (Wa). **Laville's Mixture,** is said to be a tincture of Quinine and Colocynthine, but it is more than probable that Colchicine is the active agent therein. [See N. Y. Med. Record, Dec. 5, 1885, page 642.] **Quinine,** as antipyretic; not so useful as wet pack or cold bath; gr. ij–v after the more acute symptoms have subsided (B); is best for the head symptoms (Da C). **Opium,** strongly recommended as anti-rheumatic; gr. j every 2 or 3 hours, increased to gr. xij in 24 hours; tolerance remarkable in this disease; in rheumatic carditis it is indispensable (Wa); a very good remedy in moderate doses (Da C). **Lithium Bromide,** equally good in all forms, especially for insomnia, delirium, etc. (B). **Digitalis,** in powder, gr. ij every 4 hours, usually effective after 2 to 7 days; especially useful in cardiac complications with cyanosis and œdema. **Iron,** Tincture of Chloride very serviceable in pale, delicate subjects, ♏xx–xxx every 4 hours; also as prophylactic where tendency (Anstie); harmful to the plethoric and overfed (B). **Alkalies,** the alkaline treatment is now seriously questioned; an injurious dyscrasia results from their use (B): Potassium Bicarbonate, gr. xxx every 4 hours, in a dilute solution, until joint-symptoms and fever disappear (Wa). **Lime-juice,** ℥viij daily, Lemon-juice inferior (R). **Blisters,** are a very effective method; a number of small blisters applied to vesication around a joint (B); large flying blisters around a joint (R). **Water,** cold baths for the hyperpyrexia (Da C); the wet pack very efficacious in rheumatism, also a vinegar vapor bath (B); the wet pack, 20 or 30 minutes, and tepid (70°) shallow bath 1 or 2 minutes. Cold applications only when skin hot and dry, and temperature high. Warm baths, or hot compresses very useful. Spongiopiline an excellent substance for applications. **Diet,** low during the fever, water, barley-water, milk-and-water, gruel, etc. All through use liquid food. Avoid malt liquors, port wine and sugar. Lemon-juice may be used freely. **Blankets,** instead of sheets to sleep in, and flannel underclothing are useful adjuncts. **Pack** the joints with cotton covered with rubber cloth or oiled silk.

Prescriptions.

℞. Olei Gaultheriæ, ... ʒj.
Acidi Salicylici, ... gr. lxxx.
Sodii Boratis, ... ʒj.
Syr. Picis Liquidæ, . . . ℥ij.
Aquæ Anisi, ... ℥ij.
M. Sig.—A dessertsp. every two hours.

℞. Potassii Iodidi, ... ʒij.
Vini Colchici Sem.,
Syr. Simplicis, . . . āā ʒiv.
Aquæ Menthæ Pip., . . . ℥v.
M. Sig.—Tablesp. every 4 hours.
(*New Orleans Charity Hosp.*)

℞. Propylaminæ Chlorid., . . gr. xxiv.
Aquæ Menthæ Pip., . . . ℥vj.
M. Sig.—A tablesp. every two or three hours. (*Tyson.*)

℞. Acidi Salicylici, ... ʒij.
Ferri Pyrophosphat., . . . ʒj.
Sodii Phosphatis, ... gr. xij.
Aquæ, ... ℥vj.
M. Sig.—A tablesp. every 2 hours.
(*Peabody.*)

℞. Ammonii Phosphatis, . . ʒjss.
Tinct. Colchici Seminis, . ʒj.
Tinct. Aconiti, ... ʒij.
Syr. Simplicis, ... ℥iij.
M. Sig.—A teasp. every three or four hours. (*Corson.*)

℞. Sodii Salicylatis, ... ℥ss.
Tinct. Lavand. Co., . . . ʒiij.
Glycerini, ... ʒvj.
Aquæ, ... q. s. *ad* ℥vj.
M. Sig.—A tablesp. every three hours, well diluted.

Rheumatism, Chronic.

Arsenic, is very good in most cases, given in small doses steadily (Da C); with Guaiac instead of Sulphur in the Chelsea Pensioner (see *ante*, page 467), the latter is more efficient (Fothergill). **Bryonia,** is useful, especially for painful and stiff joints (P). **Rhus Toxicodendron,** a very powerful agent in subacute muscular or tendinous rheumatism, worse at night (Pf); the tendons, ligaments, and fasciæ are most benefited; externally, as lotion on compresses; also, internally, small doses every two hours (P). **Potassium Iodide,** especially when pains are worse at night, or of syphilitic origin (R); should always be fairly tried in chronic rheumatism (Da C); was Sir Astley Cooper's remedy. **Cimicifuga,** sometimes has wonderful success, yet often fails; no indications (B); in rheumatic neuralgias and headaches, and rheumatism of uterus (P); signally beneficial in many forms (R). **Mercury,** and **Morphine,** the Oleate locally, for joint affections (R). **Colchicum,** is of decided advantage in neuralgia of chronic rheumatism (B). **Mezereon,** strongly recommended (P, R). **Phytolacca,** has been useful (B). **Iodides** often prove very satisfactory, especially in strumous or syphilitic subjects (B). **Aconite,** the extract as plaster to joints is unquestionably very useful (P); is more useful in chronic than acute rheumatism (Wa); the liniment of the B. P. locally over the sciatic nerve when affected (Fothergill). **Dulcamara,** has been employed with advantage (P); **Sulphur,** locally, also Sulphides as baths (R); is certainly of benefit (B); Sulphur waters are undoubtedly efficient (Da C); Sulphur is an ingredient of the Chelsea Pensioner (see *ante*, page 467), an old English remedy for chronic rheumatism. **Ichthyol,** is invaluable given internally in pill, gr. x–xxx thrice daily; also as ointment with Lanolin 50 per cent. (Illinsky); or as a liniment with Turpentine or an equal weight of a mixture of Lanolin and Olive Oil, with 30 per cent. of Chloroform. **Iodine,** for pain around joints (R). **Lithium Bromide,** gives excellent results, when smaller joints swollen, tender (B). **Lithium Salicylate,** in 15- to 20-grain doses every four hours, gives good results in lingering, subacute cases after acute attacks (Da C). **Quinine,** in rheumatism with debility, shown by night sweats, or sweats during sleep and only then (Wa). **Arnica,** the tincture and infusion are useful (P). **Cajuput Oil,** internally and externally in muscular rheumatism (P). **Turpentine,** benefits and relieves the pains; internally and externally as liniment (P). **Guaiac,**

used with varying success (B); often gives excellent results; the ammoniated tincture, ʒj–ij in milk (Da C); is vile to the taste. **Eucalyptus**, the leaves wrapped around the affected part, renewing them daily for a week or more, often very efficient as a local stimulant, and will produce vesication if too long continued (Gibbons). **Xanthoxylum**, has long had deserved reputation, ♏xv–ʒij of fluid extract (B). **Thuja Occidentalis**, is useful for rheumatic pains (P). **Manganese Sulphate**, is one of the remedies (B). **Belladonna**, the extract locally very valuable for pains (P). **Cod-liver Oil**, internally and externally, exercises some influence (B). **Chimaphila**, may prove useful, especially when lithiasis (P). **Lupulin**, as an anodyne (P). **Burgundy Pitch**, as plaster locally (P). **Aliment**, avoid alcoholic and malt liquors, coffee, also starchy, animal and saccharine food; the farinaceous vegetables and acid fruits suitable (B). Alkaline mineral waters have deserved reputation (B). **Turkish Baths**, in chronic muscular rheumatism (B); steam bath daily of great benefit, may be obtained at home by pouring water on hot bricks in a tub, the patient sitting on a board or chair above, enveloped in a blanket (Brick). **Red Flannel** next skin, very popular, but white better, as the red often gives rise to eruptions (Da C). [Compare LUMBAGO, MYALGIA, PLEURODYNIA, ARTHRITIS, SCIATICA.]

Prescriptions.

℞. Pulv. Resin. Guaiaci,
Potassii Iodidi, . . . āā ʒj.
Tinct. Colchici Seminis, . ʒiij.
Aquæ Cinnamomi,
Syrupi, ... āā q. s. *ad* ℥vj.
M. Sig.—A dessertsp. to a tablesp. thrice daily. (*Pepper.*)

℞. Tinct. Guaiaci Æther., . . ℥j.
Tinct. Colchici Æther, . . ʒvj.
Tinct. Cann. Ind. Æther., . ʒij.
M. Sig.—25 to 30 drops on sugar, every 4 hours, for rheumatic and neuralgic symptoms. (*Atlee.*)

℞. Ac. Arsenosi, ... gr. iij.
Pulv. Guaiaci, ... ʒiij.
Pulv. Capsici, ... ʒss.
Pil. Aloes et Myrrhæ . . . ʒiij.
Ft. pil. no. cxx. Sig.—One thrice daily. The modified Chelsea Pensioner.
(*Fothergill.*)

℞. Linim. Aconiti (B. P.),
Linim. Belladon., . . . āā ʒij.
Glycerini, ... ℥ij.
M. Sig.—Apply locally over the seat of pain. (*Fothergill.*)

℞. Olei Sinapis, ... ʒss.
Olei Terebinth., ... ʒiij.
Camphoræ, ... ʒiv.
Liq. Ammon. Fort., . . . ʒiij.
Tinct. Capsici, ... ʒiv.
Alcoholis, . . . q. s. *ad* ℥vj.
M. Sig.—Russian Spirit, a liniment for rheumatism.

℞. Potassii Iodidi, ... ʒj.
Potassii Nitratis, ... ʒss.
Ext. Cimicif. Fl.,
Glycerini, ... āā ℥ss.
Vini Colchici Sem., q. s. *ad* ℥ij.
M. Sig.—A teasp. after each meal.
(*Potter.*)

Rheumatism, Gonorrhœal.

Opium, as Dover's powder, in the acute stage, full doses (Wa). **Potassium Iodide**, with tonics and stimulants, after the acute stage has passed, followed by friction, shampooing, and passive movements of the joints (Wa). **Ammonium Chloride**, in free doses, especially when the muscles are affected (Fuller). **Potassium Chlorate**, internally, and as urethral injection, until urethral discharge is entirely stopped, then ♏xx of Tinct. Ferri. Chlor. 4 times daily, with gr. x of Quinine daily, and good food (Da C). **Aspirate**, when pus is discovered around the joints, as the case will be one of pyæmic rheumatism, and may involve more joints than one (Da C).

Rheumatism, Muscular.

Diaphoretics, as Dover's powder, with Potassium Nitrate, or Ammonium salts, with dry heat to the part involved and rest in bed (Da C). **Morphine and Atropine**, gr. $\frac{1}{4}$ and gr. $\frac{1}{60}$, together hypodermically, are of great service in most forms (R). **Lithium Bromide,** is almost specific (B). **Jaborandi,** or Pilocarpine hypodermically, to get the skin acting freely, a great desideratum (Da C). **Potassium Iodide** and **Colchicum,** or **Quinine,** gr. xij–xvj in 24 hours, if case lingers over a week (Da C). **Liniments** are of little use except to amuse the patient, but Chloral ℥j in ℥vj of Linim. Saponis, makes a good one (Da C). **Capsicum,** powdered, with Lard, ʒij ad ℥j, rubbed over the part, night and morning, with a gloved hand, is very efficient (Macdonald). **Cimicifuga,** is often very efficient in lumbago, myalgia, pleurodynia, and similar conditions (Wa). **Xanthoxylum,** gives relief in some cases of muscular rheumatism (B). **Lithium,** and its salts, where there is a uric-acid diathesis (B). **Colchicine,** 5-minim doses of a $\frac{1}{10}$ solution of Merck's, hypodermically into affected muscles, thrice daily, very effective in cases resisting other treatment. [Compare LUMBAGO, MYALGIA, PLEURODYNIA, TORTICOLLIS.]

Roseola.

Scarcely any treatment called for; no local application needed, as the rash is but slightly irritating. **Aconite** or **Belladonna,** according to the symptoms, or **Ammonium Carbonate,** answers all the indications. [Compare MEASLES.]

Sarcinæ.

Sulphites and **Hyposulphites,** have been employed to destroy sarcinæ and torulæ in the stomach (R); or **Sulphurous Acid,** diluted, before each meal (Wa).

Scabies.

Sulphur, a solution of Potassa Sulphurata ʒss–℥j, as local application; an extemporaneous Sulphide may be made by boiling one part of quicklime and two of Sulphur in ten of water (B): Sulphurous Acid, as gaseous bath, the quickest method; Hebra's mixture of Sulphur, Chalk, Tar, Soap and Lard, less irritating, and equally sure (R). **Calcium Sulphide,** as a bath (W). **Sulphuric Acid,** internally, has cured when other remedies failed (Wa). **Storax,** equally serviceable and not irritating as is Sulphur, one part to two of Olive Oil, with a warm bath (R). **Mercury,** the Bichloride is very efficient, if used strong enough, but caution is required in its employment (B). [See formula below.] **Staphisagria,** a certain remedy; 3 parts to 5 of Lard, boiled at 212° F. for 24 hours, when cooled, after straining add a little essence; friction with this 4 times daily (Wa). **Balsam of Peru,** the best of all applications, killing the acarus, relieving the itching and dermatitis, and disinfecting the parts; rub in ʒj over the body after a warm bath (Bruce); is fatal to the itch-mite (Oldberg). **Manganese,** the Oxide, ʒij to ℥j Adipis as ointment (B). **Copper Sulphate,** as lotion (℥j to Oj) has been used with great success, after crusts are thoroughly removed with soap-and-water (B). **Alkalies,** as soaps or ointments to remove cuticle and break up burrows (R). **Carbolic Acid,** locally (B). [See TINEA for formula.] **Cocculus Indicus,** as ointment, useful (P). **Tar Ointment,** relieves itching quickly and cures disease in 10 to 12 days (P). **Anise Kamala,** as ointments, efficient (P). **Benzoic Acid,** gr. x–xx ad O½ aquæ, as lotion, effectual for the pruritus (R). [See last formula on left-hand column, under PRURITUS.] **Beta-Naphtol,** by far the best application (Shoemaker); in 3 to 5 per cent. alcoholic solution, or as a 10 per cent. ointment. **Linen,** should be immersed in boiling water; other garments well fumigated with Sulphur vapor to destroy insects or their ova, or baked in oven (R).

Prescriptions.

℞. Styracis Liquidis, ... ʒij.
Ung. Sulphuris, ... ℥iv.
Ung. Petrolei, . . q. s. *ad* ℥j.
M. Sig.—Apply after washing.

℞. Sulph. Sublimat., ... ʒj.
Balsam. Peruv., ... ℥ss.
Adipis, ... ℥j.
M. Sig.—For children. (*Duhring.*)

℞. Hydrarg. Chlor. Corr., . . . gr. iv.
Alcoholis, ... ʒ vj.
Ammonii Chloridi, . . . ʒ ss.
Aquæ Rosæ, . . q. s. *ad* ℥ vj.
M. Sig.—Lotion for scabies, phthiriasis, and tinea versicolor. (*Fox.*)

℞. Sulph. Sublimat.,
Olei Cadini, ... āā ʒ ij.
Cretæ Preparatæ, ... ʒ ijss.
Saponis Viridis,
Adipis, ... āā ℥ j.
M. ft. unguentum. (*Bulkley.*)

Scarlatina.

Aconite, of the highest value for all marked increase of temperature (R); helps the development of eruption when due (P); in the early stage, when not decidedly adynamic, is very useful (W). **Belladonna**, during the eruptive stage, when depression exists, and rash is imperfectly evolved (B); as prophylactic has been recommended (R); is often efficacious as prophylactic (P); the preponderance of evidence is certainly in favor of such use of the drug (Pf); this virtue is claimed by imposing authorities; when so given its dose is gr. $\frac{1}{7}$ several times a day (Tr). **Mercury**, gr. $\frac{1}{3}$ of Gray Powder every hour has marked effect on inflamed tonsils (R). **Ammonium Carbonate**, feeble circulation, cyanosis, delirium (B); in all forms, especially if given early (R); one of the most reliable remedies; gr. iij-vij, according to age, in milk or Cinnamon-water, every hour or two (Wa). **Potassium Iodide**, in full doses, a very satisfactory remedy (Mitchell). **Mineral Acids. Muriatic**, internally and as gargle; **Nitric**, locally to sloughs in the throat (R). **Salicylic Acid**, given in 125 malignant cases, with mortality of only 3½ per cent. (Shakowaki). **Carbolic Acid**, internally and as gargle, successfully used; [See MEASLES, for formula,] seems to exercise some influence as prophylactic (Wa); is good for the vomiting and for its general effect on the disease; ♏ss, every 2 or 3 hours (Da C). **Veratrum Viride**, in convulsions (R). **Rhus Toxicodendron**, of great service, if typhoid or rheumatic symptoms (P). **Digitalis**, very useful; lowers temperature and maintains kidney action (B); the best antipyretic and diuretic, the infusion with dry cups for the renal dropsy in its inception; later on, milk diet and Basham's Mixture (Da C). **Potassium Permanganate**, locally to throat, and internally (gr. ¼–j ter die) has undoubted benefit (B). **Sulphurous Acid**, by inhalation, spray, or fumigation, in malignant sore throat (R). **Chlorine Water**, in sloughing of throat (R); seemingly prophylactic (Wa). **Quinine**, small doses, in adynamic states, large in hyperpyrexia (B); very successful when used systematically from the start (Wa). **Ferric Chloride**, the tincture in doses of ♏x–xv, according to age, in advanced stage; when with albuminuria and hematuria, is very valuable (Wa). **Potassium Chlorate**, in grain-doses every ½ hour, will not injure the kidneys, and will give equal results as larger doses on the throat inflammation (Smith). **Asclepias**, to promote the eruption (W). **Zinc Sulphate**, gr. $\frac{1}{18}$ every 3 hours, believed to have specific influence on the disease (Hoyt). **Sodium Benzoate**, is highly efficient, having slower but more permanent effects on the fever than Quinine or the Salicylates (Klebs). **Boric Acid**, makes an excellent gargle (Da C). **Juniper**, as diuretic when dropsy (R). **Magnesium Sulphate**, as purgative, to prevent sore throat and other sequelæ (R). **Sodium Sulpho-carbolate**, as a means of introducing Carbolic Acid into the system; has been successfully employed (Wa). **Mustard Bath**, on recession of rash, to bring it back (R). **Oil Inunctions**, very grateful, especially useful in desquamative stage; Cacao-butter the most elegant (B). **Ice**, sucked, for the sore throat (R). **Water**, cold baths with oil are all that are needed in mild cases; when temperature above 104°, urine scanty and rash retroceding, the cold wet-pack renders signal service (R); cold wet compress to neck, through the whole course, renewed every 3 hours (R). **Diet**, fruit, if ripe, in season, toast, gruel, etc., in simple cases; in malignant, extract of beef, stimulants as per pulse. Milk the most suitable aliment, both as nutrient and as diuretic.

Prescriptions.

℞. Ac. Borici, ... ʒss.
Potassii Chloratis, ... ʒij.
Tinct. Ferri Chloridi, . . ʒij.
Syrupi, ... ℥ij.
Aquæ, ... ℥ij.
M. Sig.—Tablesp. every 2 hours, to a child of five years. (*Smith.*)

℞. Acidi Carbol., ... ʒss–j.
Vaselini, ... ℥iv.
M. Sig.—By inunction to the entire surface.

℞. Acidi Salicylici, ... ʒij.
Tinct. Aconiti, ... gtt. xij.
Infusi Digitalis, ... ℥jss.
Spt. Ammon. Aromat., . . ʒiij.
Syr. Aurantii Cort., . . . ℥ss.
Aquæ, ... ℥j.
M. Sig.—Teasp. every 3 hours, for a child of five years. (*Brown.*)

℞. Acidi Borici, ... ʒiij.
Glycerini, ... ℥iv.
M. Sig.—For a pint of water as a gargle. (*Da Costa.*)

Sciatica.

Aconite, locally (P); as ointment controls in some instances (R); valuable and efficient in many obstinate forms (Wa). **Antipyrin,** or **Acetanilid,** are efficiently analgesic. **Salipyrin,** in rheumatic sciatica, has been employed with excellent results. **Rhus Toxicodendron,** a very powerful therapeutic agent in various rheumatic affections of the fibrous tissues (P). **Cimicifuga,** is highly extolled (R). **Nitroglycerin,** in doses of ♏j thrice daily, gradually increased to ♏v, of a one per cent. solution promptly curative in a long-standing and severe case (Lawrence). **Turpentine,** causes an exquisite sensibility along the track of the great nerves (Tr); occasionally of great value in sciatica, yet not a specific, nor have we scientific indications for its use (P); ℥ss doses for 4 or 8 successive nights (R). **Sulphur,** locally, believed to relieve the pain; effect probably due to the flannel surrounding it (R); is worthy of trial after active symptoms are subdued (Wa). **Phosphorus,** in neuralgic form; less satisfactory in sciatica than in other neuralgias (R). **Nux Vomica,** often successful in chronic (Wa). **Belladonna,** has afforded relief (R). **Atropine,** hypodermically, is curative; large doses gr. $\frac{1}{50}$ to $\frac{1}{30}$ in vicinity of nerve (B). **Cocaine,** hypodermically along the nerve, has afforded instant relief (Wa). **Veratrine,** as strong ointment; **Veratrum Viride,** as tincture is also recommended (R). **Ammonium Chloride,** in mild forms (R); occurring in the young (Anstie). **Ether Spray,** generally of temporary value (R); **Chloroform,** on flannel along course of nerve, covered with oiled silk (Wa); injected deeply into vicinity of nerve, gives the best results in old cases, ♏xv of the spirit hypodermically (B). **Stramonium,** gr. ¼–½ every 3 or 4 hours for 4 or 5 doses, often affords decided relief,—stop when slightest symptoms of narcotism appear (P). **Opium,** internally and externally (Wa); **Morphine,** hypodermically is especially curative in sciatica (B); 3 or 4 injections of gr. ⅙ each may almost be regarded as a specific (Wa); a single application sometimes cures long-standing cases permanently; if not it may be repeated every second day or so (R); should be injected deeply into the adjacent muscular structure (Pepper). **Iodides,** in syphilitic or metal poisoned subjects (B); often fails (R); Potassium Iodide in daily doses of ʒj dissolved in Decoction of Sarsaparilla, most efficacious in subacute or chronic (Wa). **Salicylic Acid,** as paste locally, ʒj with ℥iv of Lanolin and Ol. Olivæ, q. s., also **Rhus Tox.,** gtt. j. of a 1 per cent. solution of the fluid extract every 4 hours, cured one very obstinate case (Aulde). **Salol,** gr. vij in evening and gr. xv more at midnight, completely cured me after 3 weeks suffering in bed, unrelieved by other remedies (Aschenberg). **Cold** of intense degree, produced by refrigeration of limb by Methyl Chloride, extremely efficient (Jacoby); has been found effectual when applied to the sound limb. **Cantharides,** as counter-irritant, to free vesication (R). **Aquapuncture,** has had extraordinary success (B). [See under NEURALGIA.] **Acupuncture,** occasionally affords instant relief (B); often cures cases of long standing (R).

Nerve-stretching, by forcibly flexing the thigh on the abdomen (Lange). **Poultices**, applied very hot (R). **Turkish Baths**, are often very useful (R). **Electricity**, produces excellent results (B); does great good, but often aggravates; the continuous current best, when stage of acute inflammation past (W); galvanism often quickly relieves the pain (Pepper). **Cod-liver Oil**, should always be tried in obstinate cases (W). [Compare NEURALGIA, RHEUMATISM, CHRONIC.]

Prescriptions.

℞. Tinct. Colchici Seminis,
Tinct. Belladonnæ,
Tinct. Aconiti, . . . āā ʒj.
M. Sig.—♏vj every 6 hours. Remarkably efficient. (*Metcalf.*)

℞. Tinct. Colchici Sem.,
Tinct. Cimicifugæ,
Tinct. Belladonnæ,
Tinct. Aconiti, . . āā ♏xv.
M. Sig.—♏iij every 3 to 6 hours.

Scleroderma.

Cod-liver Oil, our sheet-anchor, used internally and locally (B). **Electricity**, is used successfully (B); with stimulating inunctions offers the best prospect of improvement (Bulkley). **Strontium Iodide**, has been used, with varied results.

Sclerosis.

Aurum preparations are among the remedies which are believed by some writers to retard the progress; others being Arsenic in full doses, Silver Nitrate in ¼ grain doses, Physostigma and Ergot (Osler): Gold is a specially curative agent in all forms of sclerosis, including cirrhosis of the liver, interstitial nephritis, cirrhosis of the lungs, etc.; and Dr. Barclay's Liquor Auri et Arseni Bromidi is very efficient in these affections, and much superior to the Chloride of Gold and Sodium (E. A. Wood). [Compare the several titles mentioned in this article, also LOCOMOTOR ATAXIA, ATHEROMA, PARALYSIS AGITANS.]

Scrofulosis.

Ammonium Iodide, when glandular enlargement (Wa); **Ferrous Iodide**, when debility and emaciation, a powerful and efficacious remedy; also in anæmia of scrofula, the syrup ♏xx–ʒj ter die (Wa); useful in simple glandular hypertrophy, but disappointing in scrofulous (B). **Strontium Iodide** has been used with varied results in scrofulous otorrhœa. **Iodine**, tinct. or oint. applied over scrofulous glands—take care not to increase inflammation (R): Iodine and Iron the best remedies, but all medicines utterly useless without strict hygiene (A). **Aurum**, the Bromide of Gold and Arsenic has rendered good service in a case of adenitis with enormous enlargement of the neck (E. A. Wood). **Calcium Salts**, the Chloride in doses of gr. x–xx in milk after food, when glandular enlargement of neck and chronic diarrhœa; the Phosphate of great use for sores (R); is of eminent service as a palliative (Wa) [See Sulphides below]. **Spongia Usta**, formerly held in high repute; has fallen into perhaps unmerited neglect; contains Sodium Iodide, Magnesium Bromide, Calcium Phosphate, and Ferric Protoxide, in small quantities (Wa). **Iron.** Ferrum and Calcium Phosphates combined give good results, also chalybeate waters (B); must be long continued (R). **Phosphates.** [See above, under Calcium and Iron.] **Sulphides**, for sores, abscesses, suppurating glands; gr. $\frac{1}{10}$ or $\frac{1}{20}$ of Calcium Sulphide every hour or two (R). **Coniine**, gr. $\frac{1}{2}$ to ʒj Almond Oil, locally, two or three times a day to conjunctivæ in "scrofulous" photophobia; has proved very successful (P). **Cod-liver Oil**, the best remedy to promote assimilation (B); of great service in the various manifestations of this disease (R). **Stillingia**, a domestic remedy, used with much success (B).

Capsicum, in scrofulous and fistulous ulcerations, a weak infusion becomes a useful stimulant (P). **Mezereum**, strongly recommended (P). **Sarsaparilla**, useful by reason of its tonic and alterative properties (P). **Hyoscyamus**, the bruised leaves as cataplasm for scrofulous ulcers (P). **Prunus Virginiana**, is found very useful in the hectic (P). **Chimaphila**, holds a certain amount of reputation as a useful remedy (P). **Tussilago**, was employed by Cullen (P). **Gentian**, is valued; the infusion a useful vehicle for chalybeates, etc. (P). **Blisters**, for scrofulous glands (R). **Grape-cure**, renders much service (B). **Alcohol**, no doubt as to its great value; with Cod-liver Oil, or in small amounts at meals (Wa). **Phosphorus**, eminently serviceable in scrofuloderma, gr. x in Ol. Olivæ ℥j, doses of ♏v–x, thrice daily after meals (Broadbent). **Aliment**, raw or broiled meat, the latter for children. Abundance of fresh air and sunshine. **Sea-air**, sunlight, moderate exercise, and light digestible food are necessary. [Compare CACHEXIÆ, GLANDS, COXALGIA, OPHTHALMIA.]

Scurvy.

Citric Acid, used with great advantage, though inferior to Lemon-juice (Wa). **Lemon- or Lime-juice**, of the utmost value, both as preventive and a curative agent; its efficacy believed to be due to its Potassium salts: Oranges are highly useful (Wa). **Acids**, especially Vinegar, to prevent scurvy, in the absence of lime-juice or fresh vegetables (R); dilute Muriatic Acid, gtt. v, thrice daily with juice of three lemons daily, vegetables and fresh meat (Da C). **Potassium Chlorate**, is probably a remedy of some value (Wa); is not (W). **Cinchona**, a decoction, or the dilute tincture with Myrrh or the Chlorates, a very useful gargle. **Quinine**, internally when much prostration, combined with mineral acids (Wa). **Alcohol**, diluted, as gargle (R). **Atropine**, hypoderm. for salivation (R). **Alum**, a solution in water with Tinct. Myrrhæ ℥ss, several times daily as lotion for ulceration of the gums (W). **Liquor Sodæ Chloratæ**, ʒvj ad ℥xij aquæ, as a mild application to gums (Wa). **Dietetic Treatment** alone required; Lemon-juice plays no essential part in the treatment; the full diet of an hospital, comprising fresh meat, vegetables, and milk, is generally sufficient. [Compare CANCRUM ORIS, PURPURA.]

Sea-sickness.

Antipyrin, is successfully employed. **Chloral**, the most effective remedy; gr. xv–xxx every four hours (R). **Staphisagria**, has given relief (P). **Creosote**, checks the vomiting (R). **Chloroform**, drop doses pure (R); ♏ij–v on sugar (B). **Atropine**, hypodermically, gr. $\frac{1}{120}$ in epigastrium, will relieve (B); gr. $\frac{1}{300}$ to $\frac{1}{200}$ given with **Strychnine**, gr. $\frac{1}{75}$ to $\frac{1}{80}$ hypodermically, is really specific in most cases, and in some if given before sailing, will prevent for the whole voyage, though but one dose be administered. **Cocaine**, quite efficient, the Hydrochlorate in water, 1 to 100, of which ♏iv–v on a bit of ice thrice daily (Otto). **Morphine**, gr. $\frac{1}{12}$ to $\frac{1}{6}$ hypodermically, will often relieve severe cases (B); often fails (Wa). **Amyl Nitrite**, by inhalation (B); is strongly recommended, but must be cautiously used. **Champagne**, iced; tablesp. doses every quarter-hour (B). **Calumba**, a few drops of the tincture will sometimes relieve (B). **Spinal Ice-bag**, often successful (R). **Cocaine**, is reported quite successful. **Bromides**, in full doses (Beard). [Compare NAUSEA, VOMITING.]

Seborrhœa.

Glycerin, especially useful; with Lead Acetate, Borax or Zinc, diminishing secretion; also acts efficiently when there is a want of sebaceous secretion (Wa). **Zinc Oxide**, ʒj, Plumbi Carbonat. ʒj, Cetacei ℥j, Ol. Olivæ q. s. Ft. unguent. (B). **Oleate of Arsenic**, is of benefit (Wa). **Mercury**, an ointment of the White Precipitate is servicable on the scalp, with an occasional shampoo with tar soap or soft soap in solution, followed later by mildly stimulating lotions (Bulkley). [Compare ACNE, PITYRIASIS.]

Shock, Surgical.

Codeine, in large dose (gr. j) hypodermically, immediately after laparotomy, quiets pain, prevents intestinal contraction, and relaxes the tonic spasm of the vessels which forms the first stage of shock, shown by the small and rapid pulse, before the second stage, that of paresis of the vaso-motor system, sets in, as shown by the soft, compressible pulse;—Morphine is the ideal relaxer of spasm, but has many objectionable qualities, which Codeine is free from (Boise). **Amyl Nitrite** and **Glonoin**, relax arterial spasm, and are indicated in the first stage of shock. **Hot Water** as clyster, a pint injected into colon, and repeated as required, after laparotomy, in which operation the handling of the intestines sets up irritation of the sympathetic system, and is a potent cause of shock;—this acts as a sedative thereto, and restores fluid to the blood, allaying thirst and supporting patient. **Normal Salt Solution**, consisting of ⅓d of one per cent. of Sodium Chloride in sterilized water, intravenously, to raise the volume of the pulse, stimulate the heart and restore volume to the blood, renders good service in the second stage of shock. **Strychnine** hypodermically, is the best medicinal agent in the second or paretic stage of shock, when the vessels are relaxed and the pulse is soft and compressible; a full dose (gr. $\frac{1}{30}$) is necessary, and may be repeated in ½ hour (W). **Digitalin**, hypodermically, may also be of great service in the second stage. **Alcohol**, as Brandy or Whiskey, hypodermically or by enema, is exceedingly useful. **Heat**, is a potent preventive of shock; the room should be warmed to 72° F., exposed limbs should be wrapped in cotton batting, and hot water bottles wrapped in towels should surround the patient's body both during and after operation.

Sick-room.

Every home of any pretensions should contain a room especially arranged and kept ready for the use of sick members of the family. Such a room should be on the upper floor, and preferably in the south-east corner, so as to have the best sunny exposure; or still better, should be itself the upper floor of a two-story annex, separate from the main building, but joined thereto by a light, latticed bridge. It should have no upholstered furniture, a bare but painted floor, and rough-plastered and painted walls and ceiling, without pictures or paper, curtains or hangings. It should contain no sink, wash-basin, water-closet or any other convenience which connects with the sewers, and should communicate with the kitchen by a dumb-waiter, or have connected with it a smaller room, furnished with a gas-stove and the other requirements of a diet-kitchen. It should contain everything requisite for nursing a case of typhoid fever, scarlatina, diphtheria, measles or small-pox; and all its arrangements should be supervised by the family physician. The possession of such an appendage to the home would enable the owner to defy the mandate of a Health Officer, in regard to removing an inmate thereof to a public pest-house; as it could be shown to the satisfaction of any reasonable court, that therein a case of infectious disease could be better isolated, and more humanely treated, than in any "pest hospital" ever yet erected by our political administrators of health laws (Potter).

Sneezing.

Arsenic, a drop of Liquor Arsenicalis three times a day in paroxysmal sneezing, allied to asthma (R). **Potassium Iodide**, gr. x, several times a day (R). **Iodine**, inhalations in paroxysmal sneezing, with itching of nose (R). **Camphor**, in incessant sneezing, with profuse running from eyes and nose; the powder should be snuffed, or the alcoholic solution inhaled (R). [Compare CATARRH, HAY-FEVER, INFLUENZA.]

Somnambulism.

Potassium Bromide, will give decided relief in the somnambulism of children allied to epilepsy, often with squinting, which may become permanent, generally the result of deranged digestion;—the nightmare of adults will usually yield to the same drug (R). [Compare NIGHTMARE.]

Spasmodic Affections.

Aconite, externally and internally for spasms not of a severe type; **Aconitine,** as ointment in the most severe, as well as in the milder local spasmodic affections; in angina pectoris, spasmodic asthma, cough, etc. (P): in spasmodic laryngitis has good effect (R). **Camphor,** in many forms said to relieve, as strangury, etc. (R). **Belladonna,** of value for spasms of sphincter muscles, especially of pelvic organs (P); Atropine hypodermically in local spasm (R). **Strychnine,** of great value in spasmodic asthma (P); also in tetanus, chorea, and epilepsy (Pf, S). **Veratrine,** as solution, brushed over lids once a day in painful spasmodic contraction of the orbicularis (Wa). **Opium,** very useful as an antispasmodic, especially if given with a stimulant, as Alcohol, Ether, or Chloroform (R). **Ipecacuanha,** in spasms of respiratory organs, of great value (P). **Chamomile Oil,** in spasms of hysterical persons, in 4- to 6-♏ doses, a very excellent remedy; also useful in pseudo angina pectoris (P). **Lobelia,** a valuable antispasmodic in cautious hands (P). **Lupulin,** in gouty spasms (P). **Tobacco,** in spasmodic asthma, and for relaxation of muscular spasms (P). **Sumbul,** in gastric spasms is of use (P). **Cardamom,** is usefully employed in gastric spasms (P). **Ammonia,** useful in children's colic (R). **Chloroform,** inhaled for intestinal spasm (R). **Sulpho-carbolates,** in flatulent "spasm," sometimes Phosphorus better (R). **Mustard Poultice,** an excellent counter-irritant in spasmodic affections (P). [Compare list of Antispasmodics on page 28, and in this section the titles ANGINA PECTORIS, ASTHMA, CHOREA, COLIC, COUGH, CONVULSIONS, CROUP, DYSURIA, EPILEPSY, GASTRODYNIA, HYDROPHOBIA, HYSTERIA, LARYNGISMUS, PERTUSSIS, STAMMERING, TETANUS, TORTICOLLIS, TRISMUS.]

Spermatorrhœa.

Potassium Bromide, when due to plethora, erections normal, but persistent and teasing; is harmful in debilitated states, or daily losses (B); with cold sponging and use of a hard bed (R). **Digitalis,** ʒj or ij of the infusion twice or thrice daily; few remedies are more successful in arresting spermatorrhœa (R, P); when feeble erections, frequent emissions, cold hands and feet (B). **Cantharis,** deficient tone of seminal vesicles, erections feeble, sexual feeling torpid; the tincture gtt. ij–iij ter die (R); with Iron internally in emissions (R). **Phosphorus,** for the induced physical and mental debility; also, Hypophosphites of Lime and Soda (R). **Gelsemium,** as anaphrodisiac, may be combined with Belladonna or Cimicifuga (B). **Nux Vomica,** relaxation and atony (B). **Strychnine,** in large doses, especially when impotence (R). **Quinine,** has been recommended (R). **Belladonna,** gr. ¼ of extract with gr. jss of Zinc Sulphate, three or four times a day, often successful in nocturnal emissions (R). **Atropine,** relaxed genitalia, no dream or orgasm (B). **Camphor Bromide,** has been useful (W). **Lupulin,** is a good anaphrodisiac; with Camphor, when a genital sedative is required (B). **Iron,** the Iodide, useful in anæmic cases (B). **Ergot,** beneficial in relaxed state (B). **Hydrastis,** is a useful injection, gtt. x of the fluid extract through a urethral tube to the prostatic portion of the urethra (B). **Cimicifuga,** useful in weak, relaxed conditions (B); when hypochondriasis, very beneficial (P). **Silver Nitrate**, a vesicating solution applied to perineum generally useful, and without danger (B). **Arsenic**, when from weak and relaxed seminal vesicles. **Kind Advice**, frequently the best treatment, as this affection is often due to the phantasms of a morbid imagination. **Bladder** should be emptied after the first sleep. [Compare EMISSIONS, also List of Anaphrodisiacs on page 48.]

Prescriptions.

℞. Potassii Bromidi, ... ʒj.
Sodii Bicarbonat., ... gr. xv.
Infusi Digitalis, ... ℥ss.
Atropinæ Sulphat., ... gr. $\frac{1}{60}$.
M. Sig.—One dose, to be taken at bedtime. (*Gross.*)

℞. Tinct. Gelsemii, ... ʒj.
Tinct. Belladonnæ, ... ʒij.
M. Sig.—15 drops thrice daily. (B.)

℞. Lupulini, ... gr. x.
Pulv. Camphoræ, ... gr. vj.
Ext. Belladonnæ, ... gr. ij.
M. ft. pil. no. xij. Sig.—One pill thrice daily. (B.)

℞. Tinct. Cantharidis, ... ʒij.
Tinct. Ferri Chlor., . . ʒvj.
M. Sig.—20 drops in water thrice daily. In impotence with spermatorrhœa, of great utility. (*H. C. Wood.*)

Spina Bifida.

Iodine, injected into the sac, ʒss of tincture, or gr. ss, with Potassium Iodide gr. v, aquæ ʒj, has cured numerous cases (B); Iodi gr. ⅝, Pot. Iod. gr. ½ ad aquæ ʒj (Wa). **Collodion**, as a means of compression (B).

Spinal Concussion.

Lead-water and **Opium**, as lotion over the seat of injury (A). **Leeches**, if pain persistent (A).

Spinal Congestion.

Ergot, gives excellent results (Brown-Séquard). **Turpentine**, as hot epithems, useful (Wa). **Antiphlogistic** measures, with rest and absolute diet; wet cups or leeches to the column; cool affusions to the spine while patient in a warm half-bath (Ros). [Compare MENINGITIS.]

Spinal Irritation.

Aconite, as ointment locally (R). **Belladonna** preparations, locally, generally are better than Aconite (B). **Ignatia**, in small doses diminishes irritability of cerebro-spinal axis (Pf). **Strychnine**, persistently, will ameliorate wandering neuralgic pains due to irritability of nervous system (B). **Ergot**, large doses for congestion (Hammond). **Conium**, in functional derangement of the cord, with excessive irritability of the reflex function (Wa). **Firing**, sometimes very beneficial (B). **Electricity**. An inverse galvanic current gives much relief (Hammond). **Blisters**, with hot-water bag to spine, large doses of Strychnine, Phosphorus, Phosphoric Acid, and Opium, are the methods based upon the anæmic theory of the disease;—out of 156 cases so treated 133 were thoroughly cured (Hammond). [Compare MENINGITIS, MYELITIS, NEURITIS, NEURASTHENIA.]

Spinal Paralysis and Softening.

Ergot, to starve the inflammation by occluding the spinal arteries (Hammond). **Electricity**, best; galvanic current from spine to nerves and muscles (Ros). Treatment must be palliative and supporting only, in softening (H).

Splenic Affections.

Mercury Biniodide, gr. j to ʒj of ointment, rubbed in before a hot fire, has given excellent results in chronic malarial enlargement of the spleen (Wa). **Quinine**, in simple malarial enlargement (B); gr. xv or xx or more daily, one of the most effectual remedies (Wa). **Ergot**, the most effectual remedy for enlarged spleen (Da C). **Ammonium Iodide**, effective in chronic splenitis, with Unguent. Hydrarg. Iod. Rubri externally; also small doses frequently repeated in all splenic derangements from malaria (B). **Iodine**, locally in chronic forms (B). [Compare LEUCOCYTHÆMIA.]

Sprains.

Arnica, is very useful; the infusion internally and externally (P); the tincture diluted as lotion is very effectual (Wa). **Aconite**, the liniment to painful sprains, often affords speedy relief (Wa). **Turpentine**, as a liniment, (P). **Ammonium Chloride**, in solution, as lotion, or with bread as poultice, to remove discoloration from sprains (W). **Rhus Toxicodendron**, the tincture ʒss to Oj of water a good external application to sprains. **Oil of Bay** as stimulating liniment (P). **Cold Douche**, salt may be added;—the force must be regulated by the condition of the tissues (R). **Rest**, the most essential measure, should be perfect. Warm fomentations, or cold affusion, opiates, and plain diet (D). A roller bandage with splints, often required to secure rest of the part.

Stains.

Silver Nitrate Stains may be removed by washing with Potassium Cyanide ʒijss, Iodine, gr. xv, Water, ℥iij; or, after moistening the spots, drop on them a few drops of Tinct. Iodine, and wash out with a solution of Sodium Hyposulphite, ʒss to ℥j (B). **Blood-stains**, if on dark-colored materials are best seen by an artificial light. After a few hours they become of a rusty, reddish-brown color, which they maintain for years. The microscope shows the characteristic corpuscles. These stains when on Iron are difficult to distinguish from rust; the latter is not soluble in water, while blood is extremely so. Heat applied to the metal will cause the blood to peel off, unless the stain has been exposed long enough to have rust mingled with the blood. A solution of blood in water, heated, forms a coagulum which is soluble in hot caustic potash, the solution thus formed is green by transmitted light, and red by reflected light. Menstrual blood cannot be distinguished from that resulting from a wound (Husband).

Stammering.

Vocal Training, the rhythmical method, the most successful, the chief end in view being to regulate the precipitate, irregular form of respiration; but long continuance necessary, six months, a year, or more, in special institutions (Ros). The patient must be taught the use of language anew, treated with especial kindness, and never subjected to mockery or punishment. [*See* Potter on Speech and its Defects, Lea Prize Essay, Philadelphia, 1882.]

Sterility.

Aurum, cures sterility when dependent on chronic metritis or amenorrhœa or coldness, more certainly than any other remedy; the Chloride, gr. $\frac{1}{10}$ (B). **Potassium Iodide**, when due to syphilis (R). Dilation of os and cervix carefully when sterility depending on obstruction, with dysmenorrhœa (H). Sterility is frequently associated with uterine displacement (Meadows); less often with atresia. In persons of good health may be caused by an acid discharge from the uterus, which kills the spermatozoa; for this Vichy water internally and per vaginam, and alkaline baths (Charrier). Is due to aspermatism of the husband in more cases than generally believed (Gross). Many cases are due to blocking of the cervical canal with a morbid discharge from the cervical glands, and such may be relieved simply by repeated cleansing thereof with a cotton-wrapped probe or forceps.

Stings and Bites.

Ammonia or **Alkalies**, a weak solution, in stings of insects, to neutralize the formic acid (R); Ammonia, as nervine stimulant in snake-bites, more useful than brandy or any other stimulant; ♏x–xx of Liquor Ammoniæ in water or wine, every half-hour or oftener; also externally or hypodermically, 1 part to 2 aquæ into a vein (Wa). **Ammonium Carbonate**, gr. v hypodermically, as for wounds by poisoned arrows. [See under WOUNDS.] **Carbolic Acid**, a weak solution sponged over the body, to keep off mosquitoes (R). **Salicylic Acid**, 1 to 19 of Flexible Collodion, locally for bites of insects; allays pain at once, and only in rare cases is the neighboring tissue swollen. **Mercury**, the Bichloride, 1 to 1000 of Flexible Collodion, is equally effective. **Potassium Permanganate**, in strong solution, 1 to 6, locally, is promptly efficient for all reptile-bites and insect-stings; if wound is small, make incision to enlarge it, and insert lint soaked in the solution; if a rattlesnake-bite, inject the solution hypodermically above the wound (Dupon). **Viola Cucullata**, the common violet, is used as an internal remedy in Pennsylvania for rattlesnake-bite, and is successful in a remarkable degree,—the leaves are eaten, and a poultice of Indigo and salt is at the same time applied to the wonnd. **Arsenic**, 1 part to 5 of Black Pepper, is the Tanjore Pill, highly esteemed in India for bites of venomous snakes (Wa). **Calcium Chloride**, a filtered solution injected into wound from snake-bite, successful in seventeen cases (Binz). **Silver Nitrate**, the sharpened stick applied to every sinuosity of the wound; excision safer (Wa). **Sugar**, applied to stings of wasps, said to relieve almost instantly (Wa). **Ipecacuanha**, as poultice or paste, allays pain and irritation; is regarded by some as almost specific (Wa). **Stimulants**, in snake-bites, freely, are most important; Liquor Ammoniæ the best (Wa); stimulants are indicated in snake-bites, but there is no remedy of any value therefor (Gross). **Sting**, should always be removed if left in the wound; pressing upon it with the barrel of a small key will expose it. [Compare WOUNDS.]

Prescriptions.

℞. Ol. Picis Liquidæ,
Ol. Olivæ,
Ol. Hedeomæ, ... aa ℥j.
Spt. Camphoræ,
Glycerini, ... āā ℥ss.
Ac. Carbolici, ... ʒij.

M. Sig.—Shake well. Lotion against mosquitoes, for fishermen and hunters.

℞. Carbonis Vegetab., . . . ℔j.
Potassii Nitratis, ... ℥ij.
Ac. Carbolici, ... ℥jss.
Persian Insect Powder, . . ℥viij.
Mucil. Tragacanth., . . . q. s.

To make fumigating pastilles for use against mosquitoes.

Stomatitis.

Potassium Chlorate, locally and internally; large doses necessary (gr. x–xx); in ulcerative stomatitis of nursing women, and aphthæ; of no value in mercurial form (R). **Hydrastis**, fluid extract, locally in mercurial and aphthous stomatitis (B). **Glycozone**, frequently applied, is of benefit in ulcerative stomatitis (Edson). **Carbolic Acid**, concentrated, in Glycerin, carefully, as a mild caustic in aphthous stomatitis (Wa). **Alcohol**, Brandy-and-water an excellent lotion (B). **Mineral Acids**, pure Hydrochloric on pine wood to ulcers (B). **Eucalyptus**, a decoction of the leaves an efficient local application (B). **Gly-**

cerite of **Tannin**, in ulcerative stomatitis (R). **Copper S**
over edges of gums in ulcerative stomatitis; genera
Alum, in ulcerative form, applied dry with the finger
pecially when disease affects one-half the jaw (R). **S**
pain of catarrhal stomatitis; one part (dissolved in
parts of water (R). [Compare APHTHÆ, CANCRUM O

Strabismus.

Belladonna, for the strabismus of encephalitis (P).
convex glasses, to suspend accommodation for month
may cure convergent strabismus in its earlier stages,
age or younger (Green in C). **Operation**, required
when of congenital origin. **Glasses**, properly adju
strengthen the weak muscles in children, and to pull

Strophulus.

Glycerin, locally combined with Bismuth, and Digit
gums is proper (H).

Sunstroke.

Water, as cold affusion when patient is stricken
absolute rest and quiet, free air, loose clothes. **Pota**
water enemata. **Stimulants** when frequent and feebl
convulsions. **Leeching**, in stage of reaction (Wa).
Gelsemium, as sedatives, instead of stimulants, whe
(Ely).

Suppuration.

Sulphides, small doses (gr. ss–j), frequently repeat
(B). **Calcium Sulphide**, when ichor secreted instead
puration, or if that is impossible will hasten maturatio
mended in profuse suppuration (R); to sustain system
longed (B). **Sarsaparilla**, is very useful (P). **Phosph**
waste from suppuration (B). **Iron and Manganese Iodi**
tic states resulting from suppuration (B). **Hydrogen**
getic pus-destroyer; the solution may be applied in
with an equal part of water. **Glycozone**, acts similarl
cleansing by Hydrogen Dioxide solution, the applicat
lates healthy action and hastens the cure; for which pu
in the entire range of therapeutics (Edson). **Bismuth**
a suppurating surface after cleansing, is highly efficien
stimulant of healthy granulation. [Compare ABSCE
PYÆMIA.]

Surgical Fever.

Aconite, quickly and repeatedly in early stages, du
the safest treatment (P). **Salicylic Acid**, or Sodium S
ful as an antipyretic (B). **Chloral**, gr. xx–xxx every 2 h
treatment (Wa).

Sycosis.

Nitric Acid, ℥j to Oj aquæ, as wash, used frequen
ʒjss finely powdered and incorporated with ℥j of Vas
ful (Wa). **Salol**, as an antiseptic powder, has done g

Citrine Ointment has been extensively employed, also the Oleate of Mercury, both with good results (Wa). **Arsenic**, the Oleate is found beneficial, and the **Solution of Arsenic** and **Mercury**, Donovan's solution, internally is highly useful. **Mercurial Ointments** are extensively employed (Wa). **Sodium Sulphite**, ʒj, Glycerin, ℥j, Aqua, ʒiij, locally, when of parasitic origin (Wa). [Compare CONDYLOMATA, MENTAGRA.]

Syncope.

Nux Vomica, in drop doses of the tincture every 5 minutes, to restore the cardiac action in extreme cases of syncope approaching heart-failure, especially when of neurotic origin; is promptly efficient (Macfarlan). **Cinnamon**, the Oil, as a powerful stimulant, sometimes employed (P). **Alcohol**, as brandy, or wine, when heart suddenly enfeebled from fright, etc. (R). **Amyl Nitrite**, in some forms, especially in anæmic subjects, its inhalation speedily restores consciousness (O'Neill). **Atropine**, gr. $\frac{1}{100}$–$\frac{1}{40}$ subcutaneously, the best means of resuscitation, there being no medicine which so promptly exalts the force and rapidity of the heart's action (Harley). **Ammonia**, internally, or breathed into the air-passages (R); the Carbonate as "smelling salts" (Wa). **Lavandula**, the compound tincture (Wa). **Chloroform**, internally, for hysterical people, as cardiac stimulant (R). **Position**, leaning forward, with head as low as possible (R). **Galvanization** of pneumogastric (B). **Cold Water** over the face, and volatile substances to the nose (B): cold affusion always (Wa). [Compare HEART AFFECTIONS.]

Synovitis.

Potassium Iodide, with Iron and Quinine, in syphilitic patients with constitution broken down (D). **Iodine**, in chronic synovitis, painted around joint; the solution injected into white swelling (R). **Quinine**, and free stimulation in all cases of pyæmic synovitis, such as occurs in acute rheumatism of gonorrhœal causation, occasionally in typhoid fever, and may result from a trifling injury in strumous subjects. **Mercury**, and **Morphine**, the Oleate locally (R); an elegant and efficient application (B): in syphilitic cases Mercury internally when acute symptoms have subsided (D). **Aconite**, for pains in inflamed joints (R). **Silver Nitrate**, locally, to vesication almost, often very beneficial (Wa). **Carbolic Acid**, injected into joint (B). **Alcohol**, and water, equal parts, an excellent evaporating lotion (B). **Blisters**, a flying blister every night in chronic synovitis (R). **Cod-liver Oil**, in strumous cases (B). **Surgical Treatment.** Splints to keep limb motionless in all cases arising from injury; during acute stage splint should be fastened at some distance above and below joint, and not touch the joint itself. Straight position, leeches *to* joint, or cupping *near* it; ice, evaporating lotions or hot fomentations. Blisters inapplicable until acute stage subsides (D). If suppuration occurs the joint must be dealt with as any other abscess cavity (MacCormac). **Heat**, as fomentations or poultices in the acute form. **Bandage**, or **Strapping**, to cause absorption of fluid; bandages (cold water) after alternate bathing with hot and cold water, in chronic synovitis. [Compare COXALGIA, JOINT AFFECTIONS.]

Syphilis.

Mercury, the mainstay in earlier and later stages; the **Protiodide** in pills of gr. ⅙ each, one after each meal increased by one every third day, until teeth get sore or bowels disordered, then drop two pills from each dose (Keyes): the best remedy for primary and secondary forms, not so in tertiary; small doses are best, to stop short of ptyalism (B): Blackwash, Calomel, or Citrine Oint. very useful in mucous sores, tubercles, and elevated indurations; in syphilitic ozæna, psoriasis, rashes, condylomata, etc., the Bichloride, gr. ij–v in ℥j of

Alcohol, painted over syphilitic mouth lesions daily (Keyes): Mercury believed to be a true vital antidote against the virus (R); used for at least two years can eradicate it (Keyes): internal administration best because most practicable; the two great preparations are the Bichloride and Protiodide—of the former, the curative dose for a man is about ½ grain daily, for a woman ⅓ grain, below which the drug has no active effect on the disease; dose of the Protiodide is larger,—for a man about 2 grains, for a woman gr. 1⅓ daily (Fournier). **Nitric Acid**, in secondary forms (R); holds a high place as an internal remedy (Wa); when sponginess of gums excessive, ʒiv to ℥ij aquæ, teasp. 4 times daily; also use locally (St.); as cautery for the initial lesion, the fuming acid, if used at all, should be applied early and thoroughly, followed by Blackwash locally on lint (Bulkley). **Potassium Iodide**, approached by no remedy in constitutional syphilis; also for mercurial cachexia, syphiloma of nervous system, and many disorders of syphilitic origin; will certainly arrest ulceration of nares, palate, etc., if given in large doses, gr. xx–ʒj every 4 hours (R); is of little value in early stages; in later should be combined with Mercury (St). **Rubidium Iodide**, is more pleasant than Potassium Iodide, having a milder taste, and is borne far better, especially by the stomach, and in regard to the production of iodism and cardiac difficulties (Neisser); is indicated in patients in a low state with weak cardiac activity (Mering); in doses of ℥jss to ℥iij of a 5 per cent. solution daily, gave the best possible results without troublesome disturbances (Bunge).

Iodine, as gargle for ptyalism; the tincture applied to syphilitic sores of the throat (R); or ℥ss of tincture to ℥iv Syr. Fusci., a teaspoonful well diluted ter die, after meals, when Pot. Iod. cannot be borne (St). **Iodoform**, powdered and dusted over ulcers (B). **Aurum**, after Mercury and the Iodides, in old cases of secondary and tertiary, ulceration of the throat, ozæna, phthisis, syphilitic bone-diseases (B); its beneficial action incontestable (Tr): the Bromide of Gold and Arsenic has rendered good service in trifacial neuralgia diagnosed as due to syphilis (E. A. Wood). **Stillingia**, with Nitric Acid in chronic cases of broken-down constitutions from Mercury and Iodides has been most satisfactory (B). **Cascara Amarga**, is said to have remarkable powers as an alterative in syphilis, but to be useless if alcohol and tobacco are used at the same time. **Sanguinaria**, in secondary and tertiary, is held to be very useful (P). **Sarsaparilla**, a most important remedy, as adjunct to, and in abuse of Mercury (P); with Guaiac and Mezereon, as the Compound Decoction of Sarsaparilla, in tertiary form (B). [See Guaiac, below.] **Belladonna**, with Mercurial Ointment, for secondary ulcerations of rectum (P); tincture ʒiv ad ℥ij aquæ, a teaspoonful 4 times a day in water, instead of mercurials (St). **Iron**, the Iodide in constitutional syphilis, to promote constructive metamorphosis (B); where anæmia exists (R); the Potassio-Tartrate, gr. xv–xx, every 4 hours, especially in the gangrenous form (Otis). **Guaiacum**, in tertiary only; or as vehicle for Potassium Iodide and Mercuric Chloride (B). **Carbolic** and **Salicylic Acids**, locally to syphilitic abscesses, Carbolic best (B). **Zinc Chloride, Iodide, Nitrate**, locally to syphilitic ulcers (R). **Denutrition**, the Arabic "hunger-cure" efficient, but unpopular (B). **Turkish Baths**, or wet packing, ameliorate and aid cure of constitutional syphilis (B). **Hygiene**, is of the greatest importance in syphilis (Bulkley). **Cod-liver Oil**, remarkably improves condition resulting from prolonged use of Mercury and Iodides, the syphilodermata, and squamæ; internally and by inunction (R). [Compare CHANCRE, CONDYLOMATA, ULCERS, PYTALISM.]

Prescriptions.

℞. Hydrarg. Iodidi Rubri, . . gr. iij.
Potassii Iodidi, ... ʒ iij–vj.
Tinct. Aurantii Cort.,
Syrup. Aurantii Cort., . āā ℥j.
Aquæ, ... ℥ viij.

M. Sig.—A teasp. thrice daily after meals. (*Otis, for the Mixed Treatment.*)

℞. Hydrarg. Bichloridi, . . . gr. iv.
Tinct. Benzoini, ... ℥ss.
Aquæ Cologniensis, . . . ℥j.
Aquæ Rosæ, ... ℥ivss.

M. Sig.—Apply locally with sponge to skin for 20 minutes. For squamous syphilides. (*S. W. Gross.*)

℞. Massæ Hydrargyri . . . . gr. ij.
Ferri Sulph. Exsiccat., . . gr. j.
Extr. Opii, ... gr. ¼.
In pill, thrice daily. (*Otis.*)

℞. Hydrargyri Bichloridi,
Ammonii Chloridi, . . āā gr. iij.
Tinct. Cinchonæ Comp.,
Aquæ, ... āā ℥ iij.
M. Sig.—A teasp. thrice daily. Each ʒ contains gr. $\frac{1}{16}$ of Corrosive Sublimate. (*Bumstead.*)

℞. Hydrarg. Iodidi Rubri, . . gr. ij.
Ammonii Carbonatis, . . gr. xx.
Potassii Iodidi, ... ʒ iij.
Tinct. Gent. Co., q. s., *ad* ℥ iv.
M. Sig.—A teasp. in water after each meal. (*Fox, for the Mixed Treatment.*)

℞. Hydrarg. Chlor. Mitis.,
Lycopodii, ... āā ʒ ij.
M. Sig.—Use as snuff thrice daily, in lesions of the nostrils. (*Diday.*)

The Three Eights.

℞. Hydrarg. Chlor. Corr., . . gr. viij.
Potassii Iodidi, ... ʒ viij.
Syr. Sarsaparillæ Co., . . ℥ viij.
M. Sig.—A teasp. thrice daily.

℞. Potassii Iodidi, ... ʒ ij.
Ammonii Carb., ... ʒ ss
Tinct. Cinchonæ Comp., . ʒ iv.
Glycerini, ... ℥ j.
Syr. Aurantii Cort., . . . ℥ jss.
M. Sig.—A teasp. in plenty of water after each meal. (*Keyes.*)

Tabes Mesenterica.

Calcium, Chloride and Phosphate (R); the Chloride is a powerful remedy if kept up (Wa). [See SCROFULOSIS.] **Iodine**, by inunction with Cod-liver Oil (El); locally over glands; carefully, lest inflammation be increased (R). **Potassium Iodide** in small repeated doses, valuable (Wa). **Mercury**, Corrosive Sublimate with bark (gr. j ad ʒij Tinct. Cinchonæ) after meals, for chronic glandular disease (D). **Phosphates**, for malnutrition (B); the Hypophosphites act slowly but surely (Wa). **Iron** and **Iodine**, in various forms are the most useful remedies in scrofulosis, but medicine is powerless without strict hygienic measures (A); the Iodide or Phosphate of Iron and Cod-liver Oil, as for tubercle elsewhere (El). **Fel Bovinum**, is worthy of trial, though at best a palliative (Wa). **Cod-liver Oil**, is the best remedy to promote assimilation (B); of great service (R). **Chaulmoogra Oil**, is of benefit, used by inunction (Wa). **Aliment**, raw meat, cream, chocolate, and cocoa, are valuable nutriments in these cases (El); peptonized foods are of inestimable value (Wa). **Hygiene**, change of air, especially to sea-air, is all-important (El). [Compare SCROFULOSIS.]

Taste, Disordered.

Mercury or **Podophyllin**, as purgative for cankery taste unconnected with alcoholism; or half-glass of pure cold water daily half an hour before breakfast (R).

Teeth.

Potassium Iodide, in doses of gr. x, thrice daily, often cures looseness of teeth from periostitis of alveolar processes (Wa). **Iodine**, tincture painted over gums close to the teeth when the gums begin to recede; also to remove tartar (R). **Cinchona**, powdered bark often used in tooth-powders (R). **Collodion**, on cotton, as stopping for carious teeth (P). **Liquor Sodæ Chloratæ**, ʒ vj ad ℥xij aquæ, a highly useful application in fetid discharges from carious teeth (Wa). [Compare DENTITION, GUMS, ODONTALGIA.]

Testicles.

Mercury, the ointment, locally in indurations and enlargements of testes (Wa). Corrosive Sublimate, with Cinchona or Sarsaparilla in sarcocele (D). **Camphorated Naphtol**, used hypodermically in tuberculosis of the testis with very gratifying results (Reboul). **Water**, cold applications in neuralgia of testes, with tonics and neuralgic treatment generally (D). **Suspensory Bandage**, with rest, in many affections of the testes (D). [Compare HYDROCELE, ORCHITIS, VARICOCELE.]

Tetanus.

Strychnine, of decided service (P); cured 8 cases of traumatic form, in doses of gr. $\frac{1}{16}$ to $\frac{1}{8}$ (S); is conclusively curative, especially in chronic and spontaneous, rather than in traumatic;—Strychninæ Sulphat., gr. $\frac{1}{60}$ to $\frac{1}{30}$ (B). **Aconite**, has benefited many cases (P); its success warrants further trial (W). **Belladonna**, successfully used in many cases; the extract, internally, and locally to wound (Wa); gr. $\frac{1}{125}$ Atropine injected into muscle (B); bleeding, vapor-baths, and large doses of Belladonna have cured tetanus (Tr). **Nicotine**, by rectum or hypodermically, appears to be useful in many cases (R); much evidence for it as the best remedy (P); effective but dangerous (B); Physostigma better (Wa). **Potassium Bromide**, not less than ℥ss during the day, with Chloral at night as a hypnotic; out of 21 cases but 3 died; its physiological action indicates it to be the best remedy known (W). **Chloral**, in large doses (gr. xx) no remedy more effectual (B); has sometimes cured (R); best used in combination with Potassium Bromide (W). **Gelsemium**, cured several cases (P). **Hyoscyamine**, gr. $\frac{1}{32}$ gradually up to gr. $\frac{1}{16}$, ameliorates (B). **Cocaine**, and Morphine, of each a 5 per cent. solution, 3 syringefuls hypodermically, immediately relieved and finally cured a bad case of idiopathic tetanus unrelieved for 3 days by chloral, morphine, etc. (Lopez). **Physostigma**, has been used with excellent results (P); the fluid extract by mouth if possible, at very beginning, and must be pushed until just short of arresting breathing (B); evidence is discrepant (W). **Apomorphine**, may prove antagonistic (P). **Curare**, hypodermically, has much evidence for its power (P). **Cannabis Indica**, used with marked success in traumatic form (P); it is difficult to obtain an active extract (W). **Ether**, by inhalation, to relieve pain (B). **Chloroform**, in small and frequently repeated doses, also by friction, has been useful in many instances (Wa). **Amyl Nitrite**, used in 3 cases with marked benefit as spinal sedative (W); has been used with success (R). **Morphine**, hypodermically, deeply into tetanized muscles (B); of no value (Wa). **Conium**, is indicated, but has not been successful (B). **Water**, as warm baths, and cold, or ice, affords only temporary amelioration (B). **Spinal Ice Bag**, extremely useful (R). **Division**, or stretching of any nerve-trunk connecting wound with spinal cord. [Compare SPASMS.]

Thirst.

Acid Drinks, promote secretion of saliva in fevers (R). **Tepid Drinks**, are useful in the thirst of diabetes (R). **Ice**, sucked, allays thirst (R).

Throat, Sore.

Aconite, when temperature high, half-drop doses of tincture, every ¼ hour for 2 hours, then every hour, will almost certainly prove efficacious (R); valuable in ordinary sore throat (P). **Belladonna**, is very admirably adapted to the treatment of ordinary sore throat; when much fever, combine with Aconite (R, P). [See CATARRH, ACUTE.] **Mercury**, in acute tonsillitis, which see (R). **Nitre**, dissolved in mouth, to abort a sore throat (Wa). **Tannic Acid**, as powder, gargle, spray (P). **Glycerite of Tannin**, after acute inflammation; in ulceration of aphthous sore throat daily when tendency to catarrh (R). **Ipecacuanha**, the wine as spray, in non-inflammatory sore throats and hoarseness from congestion of vocal cords (R). **Capsicum**, ʒj of tincture to O½ aquæ as gargle, in some sore and malignant sore throats (R, P). **Potassium Chlorate**, in grain doses every half-hour (Smith). **Alum**, dry, or in solution (R). **Myrrh**, as gargle in ulcerated sore throat (P). **Cimicifuga**, in simple (P), and malignant forms when mucous membrane dry and spotted with inspissated mucus (R). **Arsenic**, in medicinal doses, for sloughing of throat or malignant sores (R): the Iodide is an excellent remedy for the so-called diphtheritic sore throat, gr. iij triturated with gr. xx of sugar of milk, one-half of which dissolved in ℥iv of water, and a teasp. given every hour or so. **Methylene Blue**, in simple, non-diphtheritic ulceration of the throat, patients would express themselves with delight as being cured, after one or two applications of the solution (Rose). **Iodine**, the tincture, locally to sores, whether syphilitic or not (R). **Rhus Glabra**, a very efficient gargle is a decoction, ℥j ad Oj, boiled to O¾, with Potassium Chlorate, ℥ss (W). **Nitric Acid**, undiluted, to sloughs (R). **Silver Nitrate**, locally, in early stage of inflammation may cut it short (R). **Sulphurous Acid**, by inhalation, spray, or fumigations for malignant sore throat, scarlatinal or otherwise (R). **Water**, cold compress nightly, to harden the throat when tendency to catarrh (R). **Ice**, constantly sucked (R). [Compare TONSILLITIS, PHARYNGITIS, DIPHTHERIA, and Formulæ for Gargles, on page 474.]

Prescriptions.

℞. Tinct. Guaiaci Ammon.,
Liq. Potassæ, ... āā ʒ iij.
Tinct. Opii, ... ʒ ij.
Aq. Cinnamomi, . q.s. *ad* ℥ viij.
M. ft. gargarysma.
Sig.—To be used as a gargle, every hour, in clergyman's sore throat. (*Garner.*)

℞. Hydrarg. Bichlor., ... gr. iv.
Alcoholis, ... ℥ ij.
Solve, et adde—
Decocti Cinchonæ, Mellis Rosæ,
Tinct. Myrrhæ, ... āā ℥ ij.
M. ft. gargarysma. Gargle, to be diluted if too severe. For ulcerated forms of syphilitic sore throat. (*Sir Chas. Bell.*)

Tic Douloureux.

Arsenic, cures by influencing nutrition (B). **Phosphorus**, useful, gr. $\frac{1}{100}$ to $\frac{1}{12}$ every 3 hours (R). **Belladonna, Aconite, Spigelia, Iodides, Morphine, Cimicifuga, Gelsemium, Turpentine, Galvanism** (B). [See under NEURALGIA.] **Croton-Chloral**, palliative in doses of gr. v every ½ hour till gr. xxx taken (W). **Salicylates**, in large doses, cured a case of 12 years' standing. **Stramonium**, gr. ¼ to ½ every 3 or 4 hours for 4 or 5 doses, often affords decided relief; stop if narcotic symptoms appear (P). **Laurocerasus**, sometimes removes (P). [Compare HEMICRANIA, NEURALGIA.]

Tinea Circinata—(Ringworm of the Body).

Mercury, the Bichloride, 1 part to 250 of water, as parasiticide solution, after depilation (A). [See also T. TONSURANS.] **Carbolic Acid**, a very efficient application; ʒj ad ℥j Glycerini, locally (B); or equal parts of Carbolic Acid and Glycerin, is a very efficient application. **Sulphurous Acid**, better and safer (A); must be fresh to be of use (Bulkley). **Cocculus Indicus**, the decoction locally, after washing the skin well (P). **Oil of Cade**, the best depilatory known (A). **Arsenic** will not cure, but may do service as a nerve tonic or an improver of nutrition, in connection with other remedies (Bulkley). **Cuprum Acetate**, gr. x ad ℥j Adipis, as ointment, is very effective (B). **Sodium Hyposulphite**, ℥j ad ℥xij aquæ, locally, used by Dr. Tilbury Fox. **Mercury**, Calomel ointment (ʒj ad ℥j) useful (B); Hydrarg. Nitrate, as strong Citrine Ointment, rubbed in twice daily, often effectual; Hydrarg. Oxid. Rubrum, as ointment, often cures ringworm on body or limbs, when other remedies fail (Wa). **Cocculus**, as ointment from the kernels, or decoction (P). **Iodine**, as liniment once applied (R); with Oil of Tar (1 to 4 of latter) locally, is excellent (Wa). **Kamala**, used locally by the Hindoos (P). **Tar Ointment**, is used with good effect (P). **Acetic Acid**, applied to cut it short (R). **Cod-liver Oil**, a powerful auxiliary in weakly and cachectic subjects (Wa). **Diet and Hygiene**, are important; food should be nutritive and abundant, especially animal fats; daily baths, out-of-door exercise. **Fungus**, is the Tricophyton tonsurans (A).

Tinea Decalvans—(Alopecia Areata).

Parasiticide Lotions, must be used after epilation and washing of head daily with soft or black soap. Stimulants (as **Collodium**, with **Ether Cantharidalis**, equal parts), after fungus is destroyed (A). **Tonics** are necessary, especially to the nervous system (Bulkley). **Fungus**—Microsporon Audouini (A); but I have never seen it, though having made repeated and thorough searches (Bulkley).

Tinea Favosa—(Favus).

Mercury, as Hydrarg. Chlor. Corr. gr. xx; Cerat. Simplicis ℥j; efficient when used early (B); or gr. ij ad ℥j aquæ after each epilation (R). **Sulphurous Acid**, Sulphites, and Hyposulphites, as parasiticides; Sodii Hyposulphitis ℥iij; Ac. Sulphurosi Dil. ℥ss; Aquæ q. s. ad ℥xvj (Startin). **Carbolic Acid**, and Cod-liver oil, locally (B). **Oils**, to facilitate removal of scabs; head to be greased freely to prevent spreading; a mild mercurial pomade, or Quinine in Glycerin are best (R). **Cleanliness**, and free use of soap and water, is a *sine qua non*, and in some cases of tinea may be alone sufficient to produce curative results. Isolation of person, and brushes, towels, etc., necessary to prevent infection. **Fungus**—Achorion Schönleinii (A); a very rare affection in this country (Bulkley).

Tinea Tonsurans—(Ringworm of the Scalp).

Mercury, Hydrarg. Chlor. Corr. gr. xx ad ℥j Unguent. Simplicis, an effective application when used early (B); must be employed with great caution. **Sulphurous Acid**, with Glycerin (R). **Carbolic Acid**, ʒj ad ℥j Glycerini (B). **Viola Tricolor**, the leaves are employed in Italy for tinea capitis (P). **Cocculus Indicus** (P). [See T. CIRCINATA.] **Potassium Sulpho-cyanide**, ℥ss with ℥j Glycerini, ℥viij Aquæ, as lotion (R). **Iodine**, ʒij ad ℥j of Oil of Wood Tar (R). **Arsenic Iodide**, the best constitutional remedy; gr. $\frac{1}{10}$ increased to gr. ¼ for an adult: gr. $\frac{1}{20}$ to $\frac{1}{15}$ for children, with alkaline lotions locally (Wa). **Lead**, in chronic porrigo capitis; the Ointment of the Iodide (B); will complete a cure after alkaline lotions (Wa). **Fungus**—Tricophyton tonsurans (A). [Compare TINEA CIRCINATA.]

Tongue.

Potassium Chlorate, gr. v internally and ʒj–ij ad Oj aquæ locally; in ulcers of tongue (Wa); also in rawness of tongue in advanced phthisis. **Potassium Iodide**, in syphilitic ulcers of tongue (D); and in hypertrophy (A). **Potassium Bromide**, ʒj to ℥vj water as wash, may soothe morbid sensibility of the tongue (A). **Borax**, Sodii Borat., gr. xl, Glyçerini, ℥j, Aquæ, ℥iv, as application in cracked tongue (Wa). **Iodine**, the tincture locally by a fine brush, or as a gargle with 7 or 10 parts of water and some honey, has given uniform success in malignant ulcers (Wa). **Conium**, thought to act specifically with benefit in ulcer of the tongue (Wa). **Cinnamon**, the Oil as a powerful stimulant in paralysis of tongue (P). **Ginger, Cochlearia, Pyrethrum**, as gargles, **Cloves, Mezereon, Pepper**, as masticatories, in paralysis (P). **Frænum**, should be divided in tongue-tie; use blunt-pointed scissors, directing the points down, close to the jaw, so as to avoid wounding the ranine artery (D); better to cut as little as possible, and that directly backwards, as the artery of the frænum may proceed from the sublingual (Holmes). [Compare GLOSSITIS, RANULA.]

Tonsillitis.

Aconite, when accompanied by fever and elevated arterial tension, relieves greatly, gtt. ss–j of tincture every ½-hour or hour (B); every ¼-hour for 2 hours, then every hour, will almost certainly prove efficacious (R). **Belladonna,** of surprising efficacy, gtt. v of tinct. every 3 hours in ℥ss aquæ (P). **Mercury,** often speedily removes, Calomel, gr. $\frac{1}{20}$, or Hydr. cum Creta, gr. $\frac{1}{6}$ every 2 hours; not in chronic forms (B); gr. ⅓ of Gray Powder every hour when tonsils almost meet, has marked effect; the Oleate of Mercury and Morphine in obstinate and painful tonsillitis (R). **Silver Nitrate,** locally may abort, if applied early (R); the solid stick, once thoroughly applied in first stage, rarely fails to prevent suppuration (Howard). **Guaiac,** disagreeable, but very effective (P); ℥ss doses of tincture every 4 hours has remarkable power; should be given in emulsion with mucilage or yolk of an egg (B); makes an excellent gargle, [See page 474 for formula]: Tinctura Guaiaci and Glycerin, equal parts, in teaspoonful doses every hour or two, gives excellent results in acute tonsillitis. **Opium,** gr. v–x of Dover's powder at bedtime, is in many cases curative (Shoemaker). **Cocaine,** in 10 per cent. solution, locally, at intervals of 15 minutes, removes pain at once and promotes resolution; a very efficient application in 5 or 10 per cent. solution, but causes temporary paralysis of palatal muscles, so that liquids regurgitate through nose (Bœckel). **Alum,** dry or in solution (R). **Potassium Iodide,** locally (gr. j–v ad ℥), is useful (B). **Potassium Chlorate,** in grain doses every half-hour, very efficient (Smith). **Capsicum,** the dilute tincture in a gargle, or in powder applied on a swab, is useful in severe tonsillitis, especially in that accompanying scarlatina (W). **Quinine,** gr. x–xv will sometimes abort (B). **Tannic Acid,** is useful (P); as gargle. [See page 474.] **Ice** and wet pack, extremely grateful (B). **Hydrogen Dioxide,** the solution as gargle, is used with great benefit. **Cold Wet Compress,** around neck, covered with oiled silk and a dry bandage, nightly is very useful. **Incision** of the tonsils gives immediate and marked relief in all cases especially those which are not amenable to ordinary treatment. **Sodium Bicarbonate,** locally by wetted finger to surface of tonsils every five minutes for ½-hour, then every hour during the same day, will prevent necessity for lancing (Lyon Médical).

Prescription.

℞. Tinct. Aconiti, ... ʒ ss.
Tinct. Guaiaci,
Syr. Zingiberis, ... āā ℥ ss.
Syr. Simplicis, ... ℥ ij.

M. Sig.—ʒ ss–ij every 2 hours, according to age. In severe cases, with high fever, bounding pulse, severe headache.
(*Shoemaker.*)

Tonsils, Enlarged.

Ammonium Iodide, ʒss in ℥j Glycerin, applied every night by a camel's-hair brush, very efficacious (Wa). **Baryta Iodide,** in hypertrophy of the tonsils, effects a rapid diminution in their size, even when indurated for years (Hale). **Liquor Ferri Chloridi,** ʒj–ij ad ℥j, painted over tonsils twice daily, is one of the most effective astringents (Mackenzie). **Aluminum Sulphate,** a saturated solution applied daily by a brush, as a mild caustic (W). **Ergot** or **Ergotin,** injections into tonsils (Meigs). **Zinc Chloride,** as caustic, the most efficient and least annoying method; a saturated solution applied on a wire cotton-holder to each crypt and held there a few seconds; a few applications will shrink the gland in a week. **Tannin,** a strong solution touched daily to tonsils (H); a few sips of a saturated solution (℥ss in ℥iij aquæ) slowly sipped, will stop bleeding, if profuse (A); gr. xx to ℥j aquæ, hypodermically, as in nasal polypus. **Silver Nitrate,** touched daily to tonsils, will sometimes make them shrink (H). **Catechu,** a serviceable astringent gargle; the infusion ℥vj with Tincture of Kino ʒij, as gargle (Wa). **Oxgall,** locally, is praised (Wa); is of real utility (W). **Citric Acid,** rubbed daily to tonsils, is highly praised in enlargement thereof. **Excision** of a part of tonsil (H). Mackenzie's double guillotine removes both tonsils at once; hemorrhage seldom happens, ice will generally check it (A). Surgical measures should receive unprejudiced consideration, as the medical treatment is tedious in the extreme.

Tonsils, Ulcerated.

Coptis, the infusion as a gargle (B). **Sulphurous Acid**, dilute, locally by spray, or a solution of Sodium Sulphite in water (ʒj–℥j) (B). **Potassium Iodide**, will arrest syphilitic ulcerations at once (B). **Carbolic Acid**, a 5 per cent. wash with Tincture of Myrrh, a good application by sponge to throat (Wa). **Cimicifuga**, a decoction of the root as a gargle (Wa).

Torticollis.

Cimicifuga, has curative efficacy (P). **Capsicum**, a handful of the crushed pods infused for 36 hours in a pint of hot or cold water, and applied on lint covered with gutta-percha (R); gives striking results (Wa). **Opium**, as liniment with friction, or an opium plaster, is often serviceable (Wa). **Galvanization** of affected muscles, and faradization of opposed ones quickly relieves (B).

Trichiniasis.

Benzol, in doses of ♏x, every hour or two, up to ʒjss daily, followed by a brisk laxative, has been very successful in 27 cases, treated simultaneously (Putter). **Purgatives**, as Rhubarb and Senna, or an occasional dose of Calomel, to thoroughly evacuate the gastro-intestinal canal. **Glycerin**, in large doses, to destroy the worm by its hygroscopic qualities, has been recommended. The indications, in the stage of invasion, are to relieve the pains, to secure sleep, to combat the fever, and to support the patient's strength; there are no medicines which have any influence upon the embryos in their migration through the muscles (O).

Trismus.

Aconite (A), **Atropine** (R), hypodermically. **Cannabis Indica**, has been used successfully in trismus neonatorum (B). **Opium**, ♏⅛ doses of Laudanum, with Castor Oil and warm bath, in trismus infantum. Treatment of any kind seldom effectual (D), never (El). **Ether, Chloral, Gelsemium, Physostigma** (B). [See TETANUS.]

Tumors.

Mercuric Bromide, in ½ gr. doses, has benefited abdominal tumors (Wa). **Chloroform**, in diagnosis of abdominal tumors when deep-seated, and when walls of the belly are hard and rigid; also in phantom tumors (R). **Pepsin**, hypodermically, to dissolve them. **Hyoscyamus**, the leaves as cataplasm or fomentations to painful tumors, afford great relief (Wa). **Iron**, the Liquor Ferri Chloridi is found to be valuable as a curative application to fungous or hemorrhoidal tumors (Wa). **Galbanum**, as plaster to indolent, non-malignant tumors, to diminish or cause their absorption (Wa). **Electrolysis**, is employed with more or less benefit in sebaceous, lipoma, bronchocele, enlarged glands, etc. (Wa). Apostoli's method is now generally adopted for the dispersion of fibroid tumors; it will dissipate pain, improve nutrition, and diminish size without danger to life (Bigelow); the treatment of fibroid tumors by the galvanic current has of late been universally recognized by the profession (Massey); solid tumors, as goitre, enlarged glands and similar growths have been repeatedly cured by electrolysis (B). [Compare CANCER, CYSTS, GLANDULAR ENLARGEMENT, GOITRE, POLYPUS, UTERINE TUMORS, WEN.]

Tympanites.

Turpentine, often greatly benefits (P, Wa); ʒj every 6 hours in tympanites of typhoid, with prostration but without diarrhœa (R). **Asafœtida**, in hysterical, internally or as enema, beneficial (P); also in that of fever (Wa). **Capsicum**, gr. ss–ij, every 4 hours (P). **Cocculus Indicus**, a few doses of tincture will often succeed in the tympanites of peritonitis and enteric fever (P). **Ginger**, with drastic purgatives (P). **Aspiration**, in extreme cases and as a last resort. [Compare TYPHOID FEVER, PERITONITIS.]

Typhlitis.

Opium, of undoubted curative power (B). **Purgatives**, are inadmissible; Epsom salt may be used, but no drastics (B). **Leeches**, should never be omitted when tenderness and fever begin (B). **Ice-bag**, over the swelling (B).

Typhoid Fever.

Antipyrin or **Phenacetin** or **Acetanilid**, are extensively used as antipyretics; for the dangers depending on the extensive employment of the latter drug see *ante*, page 60. **Phenocoll Hydrochloride** as an antipyretic, is used with marked success. **Thymol** may also be employed, in doses of gr. ss–ij in solution (DaC). **Arnica** is highly extolled; its "picture" shows definite powers in this disease (P); small doses in asthenic conditions (B); when vital powers are greatly depressed (Wa). **Baptisia** is very useful in the early stage (W). **Copper Arsenite**, in daily doses of gr. $\frac{1}{100}$, divided, commenced early and continuously used, will maintain a moderately low temperature, a good pulse-rate, comparative freedom from great abdominal pain and tympanites, and will lessen materially the number of stools, while it greatly improves their character and consistence (Aulde); used in 90 cases with but one death; leaves an excellent condition of the alimentary tract after the fever is over (Thomas). **Salol** is of great value as an intestinal disinfectant, promoting healing and preventing reinfection. **Salophen** has proven equally efficient. **Carbolic Acid**, ʒj, with Tincture of Iodine ʒij, of which ♏j–iij every 2 or 3 hours, is a very good plan of treatment (Da C). **Turpentine**, invaluable, when hemorrhage and extreme tympanites (P, R): ♏xxx–lx in Starch mucilage, ♏x of Tinct. Opii (P); ♏v–x frequently for hemorrhage or ♏x every 2 hours in advanced stage, with dry tongue (R); when coma, stupor, etc.; often arouses the vital powers (Wa); ♏vij with gr. $\frac{1}{48}$ of Morphine; of especial value when marked fever and congested lungs, as well as for the tympany (Da C). **Chloral**, is the best drug for nervous symptoms, but must not be used when the heart is weak (Da C). **Mineral Acids**, are very useful generally, especially HCl acid (Wa). **Nitro-hydrochloric Acid**, is to be preferred over all other plans of treatment, 20-drop doses in simple elixir; Sulphuric is useful for intestinal hemorrhage (Da C). **Sulphurous Acid**, is highly praised by Dewar, and has real antidotal power; ♏ijss–♏xx every 4 hours according to age, continued for a week or ten days, until the patient's complaints show him to be saturated; if diarrhœa be present, add Sulphuric Acid and Opium (Wilks). [See formulæ below.] **Opium**, small doses at night, for insomnia with delirium; also as injection for the diarrhœa (R); in one case when vital powers seemed hopelessly depressed, gr. ½ Opii caused improvement (Wa); for spreading tenderness (peritonitis), give 10-minim doses of the deodorized tincture, also gr. j in suppository every four hours (Da C). **Veratrum Viride**, to reduce temperature (R); for delirium ferox (B); strongly recommended (Wa); its efficacy difficult to believe (S). **Cinnamon**, efficiently used to abort the disease. [See *ante*, page 199.] **Potassium Bromide**, is as much a specific for typhoid fever as Quinine Sulphate is for ague, aborting the fever in 8 or 10 days (Hawkins). **Belladonna**, when contracted pupils, low, muttering delirium (B); is thought to counteract the poison of typhoid (Wa). **Mercury**, Corrosive Sublimate gr. $\frac{1}{100}$ every 2 or 3 hours for the diarrhœa; Calomel in small doses at onset (R), gr. x in one dose the first day, gr. iij per diem for 3 or 4 days, the German "specific treatment" (B). **Bismuth**, gr. x–xxv of the Subnitrate with gr. ½–j of Opium every 3 hours for the severe diarrhœa (Da C). **Ergotin**, gr. ij–vj hypodermically, or ʒj of the fluid extract of Ergot, for intestinal hemorrhage (Da C). **Tartar Emetic**, with Opium, when wakefulness and delirium; minute doses (gr. $\frac{1}{12}$), frequently, are of great service (B): Antimony cuts the disease short with such certainty that it is almost doubtful whether the lesion of typhoid is specific or is not rather incidental or adventitious (Lawrie); should be given with cardiac tonics. **Digitalis**, of value in many cases as a sustainer of heart power, but may be dangerous in the later stages (Anstie, Murrell); used by the Germans when there is no cardiac weakness; gr. xj–xxij, as antipyretic, over a period of 36 hours (P). **Quinine**, may have efficacy in typho-malarial fever, is less effective as the typhoid element predominates, useless in purely continued fevers (B); is justly abandoned, but may be used to maintain the circulation, in tonic doses, gr. vj–x in the 24 hours (Da C). **Serpentaria**, useful when much depression exists, cautiously, if intestines at all irritable (B). **Hydrastine**, when copious sweats (P). **Lead Acetate**, with Opium, for the purging (R); also **Alum** (R). **Ergot**, for intestinal hemorrhage, hypodermically, if symptoms urgent (R). **Sodium Chloride**, should not be withdrawn from the food (Wa). **Aromatic Spirit of Ammonia**, for great accumulation of mucus in the throat (Da C). **Copper Sulphate**, gr. $\frac{1}{12}$, with Opium, gr. ⅓, for the diarrhœa (Da C). **Strychnine**, is the remedy for the functional palsies (Da C). **Purgatives**, only the very mildest, and they with the greatest caution (Wa). **Water**, a most important agent, cold baths when temperature above 102° (B); in mild cases, cold wet compresses or wet sheets, or washing with cold water; in severe cases, affusion, shower, or general cold bath, 50° to 55° Fah., or better 95° cooled gradually to 60° (R). **Medicine** will never abort a case of true typhoid, its natural duration is from 28 to 30 days (Sir William Jenner). **Stimulants**, freely, with Quinine, for pyæmic cases, showing joint complications. [See under SYNOVITIS.] **Aliment**, by Milk alone, or alcohol with milk, eggs, broth (B); Coffee, a better stimulant than alcohol (P); Alcohol is needed to sustain the heart's action (Da C); Milk must be used with great caution, if the curd be undigested great evils arise; give essence of meat alone (Sir W. Jenner). Avoid the extremes; an absolute milk diet required if intestinal symptoms are grave; no solid food until health is restored fully; a scalded-milk diet exclusively may be depended on. **Adjuvants**, water, especially the abdominal compress, cleanliness, ventilation, absolute rest and quiet. Discharges should be received in vessels containing Carbolic Acid or a solution of Corrosive Sublimate, and buried instantly. [Compare HEMORRHAGE INTESTINAL, RECTAL ULCERATION, TYMPANITES.]

Prescriptions.

℞. Ant. et Potassii Tartrat., . gr. j–ij.
Morphinæ Sulphat., . . . gr. ss.
Aquæ Laurocerasi, . . . ℥j.
M. Sig.—A teasp. every 2, 3 or 4 hours.

℞. Quininæ Sulphatis, . . . gr. x.
Ac. Hydrochlor. Dil.,
Vel Ac. Sulphurici Dil., . . . ℥ss.
Syr. Aurantii, ... ℥j.
Aquæ Carui, . . q. s. *ad* ℥vj.
M. Sig.—A tablesp. in an equal quantity of water, every 3 or 4 hours.
(*Murchison.*)

℞. Ac. Sulphurosi, ... ʒij.
Syr. Aurantii, ... ℥iij.
Aquæ, ... q. s. *ad* ℥vj.
M. Sig.—⅙ every 4 hours. (*Wilks.*)

℞. Tinct. Iodi,
Ac. Carbolici, ... āā p. æq.
M. Sig.—gtt. j–ij every 4 or 6 hours. In typho-malarial fever.

℞. Ac Sulphurosi,
Ac. Sulphurici Dil., . āā ʒij.
Tinct. Opii Deodor., . ♏xx.
Syr. Aurantii, ... ℥iij.
Aquæ, ... q. s. *ad* ℥vj.
M. Sig.—One-sixth to be taken every 4 hours. (*Wilks.*)

℞. Ac. Sulphurosi, ... ♏xv.
Syr. Aurantii, ... ℥iij.
Aquæ, ... q. s. *ad* ℥j.
M. Sig.—For infants, one-sixth every 4 hours. (*Wilks.*)

Typhus Fever.

Phenacetin, is extensively used for the pyrexia. **Baptisia**, is said to have proved very useful (W). **Belladonna**, to cleanse and moisten the tongue; controls the delirium, slows and strengthens the pulse, reduces the temperature, shortens course of disease (R, P); in the early stages, relieves severity of symptoms (P); give when contracted pupils (Wa). **Arnica**, very highly extolled (P, Wa). **Hyoscyamus**, for mild brain symptoms (P). **Opium**, fulfils many important indications; never give when pupils are contracted (Wa). **Mineral Acids**, their use recommended in all countries (Wa). **Tartar Emetic**, with Opium in the delirium with insomnia (R). [See TYPHOID.] **Chloral**, to produce sleep, and allay violent delirium (R, Wa); its use has often been followed by amelioration of the symptoms (Wa). **Antipyrin or Quinine**, as antipyretics, it being more necessary than in typhoid to keep the temperature within safe limits (B). **Podophyllin**, gr. ⅙–¼ as mild laxative at onset, when constipation, congestive headache, biliary derangement (P). **Digitalis**, in large doses, a favorite remedy in Germany (P). **Rhatany**, as tonic, in advanced stages (P). **Serpentaria**, in low stages, delirium, watchfulness, tongue dry and brown, or black; combine with Ammonium Sesquicarbonate (P); is given occasionally to excite diaphoresis, and support the vital powers (Wa). **Camphor**, a remedy of considerable value, but contraindicated when flesh-red tongue, tender abdomen, diarrhœa (Wa). **Purgatives**. [See TYPHOID FEVER.] **Coffee**, better than alcohol for the adynamia (P). **Stimulants**, are not needed under the use of mineral acids and a supporting diet, in many cases (Wa); are needed sooner than in typhoid, as the adynamia is more profound and appears sooner (B). **Diet**, nutritious persistently, beef-tea, egg-nog, nutrient enemata. **Isolation**, imperative, as the disease is eminently contagious (B). [Compare DELIRIUM, TYPHOID FEVER.]

Ulcers and Sores.

Arsenic, improves rodent ulcer (B). **Belladonna**, has a remarkable influence over various ulcerative processes (P). **Mercury**, Calomel Ointment or Black Wash in scrofulous, or tuberculous lupus, and in open scrofulous sores (R); Corrosive Sublimate, in 1 per cent. solution, as application to syphilitic ulcers (Fox); the Ung. Hydrarg. Nitratis, for serpiginous ulcerations diluted one-half, or the Iodide, gr. xx–xl ad ℥j Vaselin, in syphilitic ulcerations (Keyes). **Lime**, as Carbonate or Lime-water to check discharge; the Sulphide when thin ichorous discharge; the Phosphate has influence on scrofulous sores (R). **Phytolacca**, as a local application (B). **Hamamelis**, employed with satisfaction in varicose ulcers (Pf). **Opium or Morphine**, with Glycerin, as an application to relieve pain (R); gr. j–ij, daily, also locally, has a decidedly curative value in phagedenic and indolent ulcers; not so useful in so-called "irritable" ulcers (Pf, P). **Ichthyol**, pure as oint. or with Lanolin, has done excellent service in ulcers of the leg. **Thiol**, the dry form, as dusting powder, has been of great benefit. **Piperazin**, in 1 per cent. solution, locally to gouty sores, relieves the pain and reduces the inflammation. **Resorcin**, in strong or supersaturated solution, locally applied to tuberculous and other ulcerations of the larynx, is efficient and painless (Tymowski). **Tannin**, or Glycerite of Tannin, to coat over wounds, or discharging sores (R). **Potassium Chlorate**, in solution as a wash to clean and stimulate foul ulcers (R); in impalpable powder, a better application than Iodoform (B). **Cinchona**, powdered Bark dusted over foul, indolent, sloughing, and gangrenous ulcers, promotes healing (R). **Conium**, locally, by means of a poultice, will ease pain and improve the sore (R). **Chlorine Solution**, as a wash for sloughing and indolent sores (R). **Iodide of Starch**, cold, as a poultice (R). **Lead**, the soluble salts as lotions to unhealthy, over-secreting sores (R). **Pyrogallic Acid**, an excellent application in venereal ulcers (Vidal). **Chloral**, in lotion, gr. v–xx ad ℥j aquæ, for sluggish sores (Keyes). **Nitric Acid**, as escharotic, applied with a glass rod, Oil to protect surrounding tissues; arrest by alkaline wash; ℥j to Oj is a good acid lotion for washing (B); the lotion to indolent and painful ulcers (R). **Hydrastis**, internally and externally, employed with excellent results in rodent ulcer, and ulcers of legs, rectum, and uterus (R). **Sanguinaria**, locally, to repress fungous granulations of indolent ulcers, 1 to 80 parts of Glycerin (P). **Carbolic Acid**, and **Salicylic**, locally (B); the Glycerite of Carbolic Acid a good application to fetid sores (R). **Balsams of Peru** and **Tolu**, excellent (P). **Camphor**, dusted over indolent sores (R). **Charcoal**, locally to sloughing sores (R). **Alcohol**, locally to cover sores with thin protecting layer of coagulated albumen (R). **Alum**, dry or in solution, applied to relaxed and abundantly-secreting sores (R). **Turpentine**, internally for ulceration of bowels (P). **Collodion**, as protective covering (P). **Capsicum**, a weak solution useful as a stimulant in scrofulous or fistulous sores (P). **Savine**, as acrid (not chemical) caustic (P). **Potassa Fusa**, or the milder Vienna paste, as escharotic; to arrest its action a dilute acid (B). **Zinc Chloride**, the most efficient escharotic consistent with safety (B). **Zinc Sulphate**, dried, dusted over sores (R). **Iodoform**, dusted over surface (B); prevents granulation in all ulcers, and does no good except to relieve pain (Gross). **Aristol**, is highly praised; an excellent substitute for Iodoform, being quite as efficient, and odorless; has given excellent results in treatment of indolent soft ulcers, syphilitic ulcerative processes, etc. (See *Potassium Chlorate* above.) **Silver Nitrate**, as caustic, quickly rubbed over surface (B); applied to unhealthy ulcers, also ulcers of the mouth (R). **Copper Sulphate**, to indolent ulcers; touch with a crystal, or frequently apply a solution, gr. ij–x ad ℥j (R). **Coptis**, the infusion has high reputation (B). **Chimaphila**, **Copaiba**, **Catechu**, **Myrrh**, **Rhatany**, **Rhubarb**, **Storax**, **Benzoin**, **Tar-water**, locally, are useful (P). **Oxygen**, to atonic, painful ulcers (R). **Galvanic Couplet** (B). [See BEDSORES.] **Yeast**, as poultices (R). **Section** of exposed nerve-filament, in irritable ulcer, by bistoury passed beneath the sore (Hilton on Rest and Pain). **Cod-liver Oil**, especially for ulcerations of the glands, or indolent ulcers with excoriated edges, lupus, etc. **Water**, is sufficient as dressing in the majority of cases. **Rest** and support of great value; cleanliness, bandaging and recumbent position in ulcer of legs, facilitate recovery; also daily washing to restore the lost vitality of parts; elastic stockings, and the Esmarch bandage in chronic cases. [Compare CHANCRE, CHANCROID, BEDSORES, THROAT, GASTRIC, INTESTINAL, and UTERINE ULCERATION, SYPHILIS.]

Prescriptions.

℞. Iodoformi, ... ʒij.
Mucil. Acaciæ, ... ♏xv.
Ol. Menthæ Pip, ... ♏ij.
Glycerini, ... ♏xx.
M. Sig.—For unhealthy ulcers.
(*Bronson.*)

℞. Emplas. Plumbi, ... ℥ij.
Ung. Hydrargyri, ... ℥ss.
Olei Cadini, ... ʒij.
M. Sig.—Spread on linen, and apply to inflamed patches on palms from syphilis.
(*Bumstead and Taylor.*)

℞. Hydrarg. Chlor. Cor., . . . gr. xv.
Ac. Carbolici, ... ♏xxv.
Aquæ, ... q. s. *ad* ℥iv.
M. Sig.—For syphilitic ulcers, pack on cotton, and renew daily.
(*Fox.*)

℞. Ung. Petrolei, ... ℥ij.
Ung. Hydrargyri, ... ʒiv.
Olei Cadini, ... ʒij.
M. Sig.—Apply after removing scales to chronic palmar and plantar lesions.
(*Bumstead and Taylor.*)

Uræmia.

Digitalis, the infusion, or a poultice of the leaves to the abdomen and back (B). **Jaborandi**, as diaphoretic, eliminates urea (B); or Pilocarpine hypodermically. **Opium**, Scanzoni and Loomis urge Morphine, hypodermically, as the most efficacious agent (B); in acute, not in chronic uræmia (Pf). **Colchicum**, as diuretic (B). [See DROPSY.] **Saline Cathartics**, active ones are required (B). **Hydragogue Cathartics**, Ol. Tiglii (gtt. j–ij), or Elaterium (gr.

$\frac{1}{16}$ to $\frac{1}{4}$), to procure free watery evacuations,—cautiously! (B). **Transfusion**, in uræmic eclampsia (B). **Water**, the vapor bath, or hot wet-pack to induce powerful diaphoresis (B). [Compare BRIGHT'S DISEASE, PUERPERAL CONVULSIONS, SCARLATINA, and the list of Diuretics and Diaphoretics, on pages 44 and 46.]

Urethritis.

Aconite, is used to advantage in urethral fever; also for prevention of chill after passage of sound (Pf, W). **Strophanthus**, efficient in preventing rigors after instrumentation on the urethra, the tincture in doses of 5 minims (Fenwick). **Silver Nitrate**, locally, very efficient in chronic urethritis in females (W). **Tannin**, on bougies, once a week for 15 minutes, most efficient for urethritis in the female (Wa). **Zinc Sulphate**, cast in sticks, for introduction into the urethra (Wa). **Potassium Bicarbonate**, with Potassium Acetate, āā gr. x in a large cup of flaxseed tea or a glass of Vichy water, every 4 to 6 hours; with absolute rest in bed, a calomel purge, and urination under hot water, sufficient for most cases of urethritis, which may arise from lithiasis, leucorrhœa in females, etc.; many cases of aborted gonorrhœa (so-called) were really simple urethritis (Otis). [Compare GONORRHŒA.]

Urethral Stricture.

Aconite, is of great service in spasmodic stricture (P). **Cocaine**, locally by catheter (Smith). **Buchu**, in irritable urethra, spasmodic stricture, and gleet (P). **Opium**, in full dose or an opiate suppository, with fomentations and a warm bath, will often suffice in spasmodic stricture (Cl). **Catheterization**, under an anæsthetic in spasmodic stricture if other measures fail to relieve; also for gradual dilatation in organic stricture, the safest and most generally applicable treatment (Cl). **Oil**, injected before dilatation (Wa). **Thorough Division**, by a dilating urethrotome the best operation for a radical cure; 600 cases thus treated without a death or permanent disability (Otis). **Electricity**, a weak galvanic current, with negative pole to the stricture, will destroy it in 2 or 3 sittings by electrolysis, and if carefully done, is the most efficient and least painful method of treatment for radical cure.

Urinary Disorders.

Aconite, of great service in sub-inflammatory retention from chill (P). **Turpentine**, in hematuria and chronic catarrh of the bladder, incontinence from atony, etc. (B). **Strychnine**, sometimes employed with marked benefit in retention or incontinence of the old (P). **Cantharis**, frequent or involuntary micturition, especially when coughing, in women from weakness of sphincter; one or two drop doses (R). **Cannabis Indica**, in retention from spinal diseases (R). **Diuretin**, a remarkably efficient diuretic in cardiac and renal dropsy, 15 grains several times daily will increase the urine three and fourfold. **Digitalis**, holds high rank as a diuretic, ʒj or ij of the infusion night and morning, or oftener if necessary; in sudden suppression from cold or damp, or after scarlatina if danger threatens (P). **Benzoic Acid**, or Sodium Benzoate, in 10 to 15-grain doses, to render alkaline urine acid, and check the formation of phosphates (B). **Thymol** in chyluria, due to the presence of filaria in the blood; doses of one grain, gradually increased to five grains, every four hours, cured two cases (Lawrie). **Nitro-hydrochloric Acid**, dilute, gtt. x–xv thrice daily in water, for phosphatic deposits (Mears). **Ammonium Carbonate**, in 6-grain doses, 3 or 4 times a day, to make acid urine alkaline. **Triticum Repens**, a favorite remedy with Sir Henry Thompson, in pint doses daily of its infusion or decoction (℥ij–iv ad Oj), for strangury, cystitis, and many other complaints, connected with the urinary apparatus. **Alkalies**, to neutralize acid urine, and control chronic cystitis; the Liquor Potassæ preferable to the bicarbonates, tartrates, and citrates, which all have diuretic action and increase the frequency of micturition; Liquor Potassæ mixed with the tinctures of Hyoscyamus or Belladonna, may undergo chemical changes, but the combination materially controls painful and frequent micturition in bladder troubles (Thompson). **Buchu**, renders more help than any drug known in incontinence or retention from catarrh of bladder implicating the ureters, and even the kidneys (P). **Water**, copious injections are beneficial in some cases of suppression (R). [Compare the list of diuretics on page 44:—and in this section see BLADDER IRRITABLE, AND PARALYSIS OF; CYSTITIS, DIABETES INSIPIDUS, DYSURIA, DROPSY, ENURESIS, HEMATURIA, LITHIASIS, NEPHRITIS, OXALURIA, URÆMIA, URETHRAL STRICTURE.]

Prescriptions.

℞. Pulv. Scillæ,
Pulv. Digitalis,
Hydrarg Chlor. Mitis, . āā gr. xij.
M. ft. pil. no. xij. Sig.—One pill as a diuretic twice daily. (*Sir A. Clark.*)

℞. Potassii Citratis, ... ℥j.
Sodii Bicarbonat., ... ʒv.
Syr. Limonis, ... ℥j.
Aquæ, ... q. s. *ad.* ℥iv.
M. Sig.—A teasp. every 2 hours, to render the urine alkaline. (*Roberts.*)

℞. Tinct. Digitalis, ... ʒss–j.
Spt. Ætheris Nitrosi, . . . ʒiij.
Liq. Ammon. Acetat., . . ℥ss.
Aquæ, ... q. s. *ad.* ℥vj.
M. Sig.—One-sixth every 3 hours, to re-establish the renal secretion. (*Goodeve.*)

℞. Potassii Bicarb., ... ʒiijss.
Acidi Acetici, ... ℥vj.
Aquæ, ... ℥iij.
M. Sig.—Teasp. doses as required, as a diuretic. Each dose contains about gr. x of Potassium Acetate.

℞. Acidi Benzoici, ... ʒij.
Sodii Boratis, ... ʒiij.
Aquæ, ... ℥xij.
M. Sig.—A teasp. in water, thrice daily, to keep urine acid. (*Emmett.*)

℞. Ext. Belladon. Fl., ... ʒss–j.
Ext. Buchu Fl., ... ℥j.
Spt. Ætheris Nitrosi, . . . ℥ij.
M. Sig.—A teasp. 3 or 4 times daily, for dysuria in women.

Urticaria.

Antipyrin, internally, is promptly efficient in urticaria, also in the urticaria-like eruptions of children. **Chloroform**, as ointment to allay itching (R). **Potassium Cyanide**, or Hydrocyanic Acid (R). [See PRURIGO.] **Nitric Acid**, as dilute wash, controls itching and prevents wheals (R). **Benzoin**, the compound tincture painted on the skin for itching (R). **Sodium Salicylate**, gr. ij every ½ hour, is remarkably efficient (Smith); gr. xx thrice daily is effective. **Copaiba**, in full doses will produce urticaria, but drop-doses every ½ hour will sometimes control it (Smith). **Strychnine**, with emetics and purgatives, when the affection is chronic (Guibout). **Colchium**, in gouty persons (R). **Lead**, in lotions to ease itching (R). **Alkalies**, (R). [See PRURIGO.] **Warm Baths**, may be employed with benefit.

Prescriptions.

℞. Acidi Benzoici, ... gr. viij.
Aquæ, ... ℥iv.
M. Sig.—Lotion for urticaria. (*Squire.*)

℞. Atropinæ Sulphat., . . . gr. ⅙.
Aq. Destil., Glycerini, . āā ʒss.
Pulv. Tragacanthæ, . . . q.s.
Ft. pil. no. x. Sig. One bis die.

Uterine Cancer.

Conium, useful as a palliative, ʒiij–iv ad Oj aquæ, as injection for the extreme pain of uterine cancer (Wa). **Arsenic**, small doses for a long time, with a strong solution of Iodine and Glycerin locally (Atlee). **Opium**, stands first in the list of palliatives, quieting irritation, allaying pain (Wa). **Morphine,** the specific action thereof upon the uterine circulation should be utilized in hopeless cases of this disease (Lutaud). [See page 317.] **Carbolic Acid,** a weak solution as injection, an excellent cleanser, healer, disinfector and allayer of pain (R). **Bromine,** the best escharotic for destruction of the mass (E). **Glycerite of Tannin,** checks discharge and stench; is still better if mixed with Glycerite of Carbolic Acid (R). **Iodoform,** with Cocoa-fat as bolus inserted into excavation produced by cancer (R); gr. v–x in each bolus (W). **Iodine,** the saturated tincture thoroughly applied to the entire surface of the mass, is frequently of great use in checking hemorrhage, and seems to temporarily check the extension of the disease (E). **Chloral,** as anodyne, will agree with most persons (E); relieves the pains (W). **Chloroform Spray,** for some minutes (R). **Cannabis Indica,** to allay the pain (W). **Surgical Measures,** advisable; medicine can only palliate.

Uterine Congestion and Hypertrophy.

Aurum Salts, often beneficial in chronic metritis with scanty menstruation (B). **Ergotin,** long continued, successful in chronic metritis; lessens congestion (B); long continued has produced remarkable results in fibroids and polypi and chronic metritis, large, spongy, subinvoluted uterus (P); by interstitial injection into the cervix, has been of great benefit (G). **Carbolic Acid,** undiluted, on cotton-wrapped probe, no better treatment for uterine catarrh (B). **Iodine,** has proved the most valuable of all remedies as a local stimulant, and a reliable alterative (E); and excitant of uterine contraction; use a saturated tincture to any part not exposed to the air (E); may be injected into cervix (G). **Iodo-tannin,** or Iodoformi ʒj, Ac. Tannici ℥j, a servicable application in many inflammatory and hypertrophic conditions; Iodoform suppositories in chronic metritis (P). **Potassium Bromide,** our main stand-by in uterine troubles; apart from its soothing properties it seems to divert the blood from the womb, and to lessen uterine congestion (G); a specific cure for simple subinvolution, the benefit being derived from the potash (Tait). **Digitalis,** in subinvolution (B). **Glycerin,** on cotton tampon to cervix as local hydragogue (Thomas). **Glycozone,** as an application in tumefied conditions of the cervix and uterus, is far superior to pure glycerin (Edson). **Potassa,** Caustic Potassa and Potassa cum Calce, are said to be effective in chronic metritis; must be used cautiously (B). **Chromic Acid,** a strong solution to interior of uterus, a very useful application. **Ipecacuanha,** in subacute metritis of the puerperal state (Tr). **Iron,** locally in uterine catarrh (R); as a tonic, Iron and other restoratives, a cardinal rule in the treatment of all uterine disorders, with Ergot, Quinine, Arsenic or Potassium Bromide, whenever the womb as a whole is congested or hypertrophied; Syr. Ferri Iodidi, with Cod-liver Oil, wins half the battle (G). **Zinc Valerianate,** in 2- to 4-grain doses thrice daily, is one of the best nervines in these cases (G). **Scarification,** after dry cupping, in chronic metritis (Thomas). **Electricity,** in chronic congestive enlargement, a galvanic current of moderate intensity, slowly interrupted (B). **Water,** hot injections or douche, also cold alternately, one of the most effective measures, a gallon very hot, ter die (R); —especially valuable in congestion, which is generally venous;—elevated hips a necessary part of treatment (E); cold water is often better than hot (G). **Rest,** to the patient and the organ, is of prime importance, abdominal bandage, skirt-supporters, pessary if anteversion or retroversion, abstinence from sexual intercourse (Thomas).

Prescriptions.

℞. Ext. Humuli, ... ℥j.
Elix. Ammon. Valerianat.,
Syr. Lactucarii, ... āā ℥ss.

M. Sig.—A dessertsp. at bedtime, or during the day when needed, as an antispasmodic. (*Goodell.*)

℞. Iodi,
Potass. Bromidi, . . . āā gr. xx.
Tinct. Iodi, ... ʒj.
Aq. Destillat., . . q. s. *ad* ℥iv.

M. Sig.—♏xxx to be injected into the cervix by 3–5 punctures. (*Goodell.*)

Uterine Diseases.

Cimicifuga, to prevent miscarriage in irritable uterus and prolapsus (R); promises to be a valuable remedy in uterine affections (Wa); is remarkably efficient in neuralgia and sympathetic pains arising from an irritable uterus, no matter what their precise character (P). **Belladonna**, with Tannin, as suppository in uterine neuralgia (R); as vaginal or rectal injections, in neuralgic or inflammatory pains (Tr). **Arsenic**, in irritable uterus, of decided benefit; gr. $\frac{1}{20}$ ter die, after meals (Wa). **Carbonic Acid**, injection up vagina for neuralgia (R). **Opium**, with Starch as injection into the rectum, will subdue the pain of uterine diseases (R); gives more speedy relief than any other remedy in irritable uterus, but long-continued is one of the worst (Wa). **Iodized Phenol**, has proved the most generally efficient agent for intra-uterine use during eight years' experience, applied by hard rubber probes wound with cotton-wool; it removes cervical mucus, gives freedom from pain, softens and dilates the cervix, heals abrasions, removes induration and villosities, regulates the menses, improves appetite and digestion, acts as a general alterative, overcomes barrenness, etc., if used long enough, but rapid results are not attainable by any method of treatment (Battey). **Lead**, as plaster for pain in the back due to uterine disease (R). **Chloroform**, spray, in uterine neuralgia (R). **Aquapuncture**, has had extraordinary success in uterine colic (B). **Baths** of warm salt water remarkably useful in nervous or inflammatory hysteralgia (Tr). [See ABORTION, AMENORRHŒA, CLIMACTERIC, DYSMENORRHŒA, ENDOMETRITIS, HEMORRHAGE POST-PARTUM, LEUCORRHŒA, MENORRHAGIA, MENSTRUAL DISORDERS, METRITIS, METRORRHAGIA, PROLAPUS UTERI, etc.]

Uterine Displacements.

Anteversion without prolapsus, is not a mal-position (E). **Ice**, locally when parts inflamed (R). **Hot-water** injections, to give tone to the vessels, essential; also valuable after reduction of mal-positions (E). **Mechanical Means**, only reliable or safe in retroversion and prolapse; the sound, as a means to restore a retroverted uterus to position, cannot be regarded as free from risk, even in skillful hands (E). **Pessaries**, harmful unless expertly fitted; should be adjusted so as to restore the uterus to the normal line, where the circulation will be least obstructed, not too high; should never be employed while cellulitis exists (E). **Cotton Roll**, as a substitute for the orthodox pessary, is far superior; use Borated Cotton in flat sheets, rolling it into a roll 2 inches long by 1 inch diameter, and saturating in Boroglyceridi ℥j, Aluminii Acetatis ℥j, Glycerini Pur. q. s. *ad* Oj; if an astringent is required, the Acetate may be replaced by Alumini Sulphas (Wylie). [Compare PROLAPSUS UTERI.]

Uterine Tumors.

Mercury, the Bichloride in small doses, long continued, of undoubted value in treatment of fibrous or polypoid growths; gr. $\frac{1}{16}$ every 6 hours, sometimes restrains the hemorrhage, when other remedies fail (Wa). **Calcium Chloride**, in 30-grain doses thrice daily, has by prolonged use cured uterine fibroids (Hewitt); calcifies uterine arteries, also those of the body generally, and is dangerous thereby (Tilt, Wells). **Ergotin**, hypodermically for fibrous tumor (R); gr. ij–vj, on alternate days, give excellent results (B); nine cases of fibroid treated thus by Hildebrandt with good results (P); this method often causes great pain and severe local inflammation (W); one grain each of Ergotin and Ferri Sulphas Exsiccat., in pill thrice daily, persistently, for uterine fibroids, using for the hemorrhages a tampon saturated with Tincture of Iodine or Monsel's Solution (Parvin). **Opium**, has specific action upon the uterine circulation, and in bleeding from hopeless cases of cancer or from fibroid tumors, should be used freely, regardless of danger of opium habit. (Editorial,

N. Y. Med. Rec., Dec. 10, 1887.) **Ammonium Chloride**, in fibrous tumors, gives more benefit than any other remedy, gr. x, twice or thrice daily, for weeks and months consecutively (Atlee). **Ferrous Subsulphate**, injected to restrain bleeding,—Cautiously! (B). **Saline Mineral Waters**, especially those at St. Catherine's, Canada, are useful (B). **Aliment**, carefully regulated, chiefly animal food, with recumbent posture while flowing, and long-continued use of Ergot in small doses, may accomplish something (E). [Compare CYSTS.]

Uterine Ulceration.

Hydrastis, quickly improves; the fluid extract undiluted as topical application in uterine and vaginal leucorrhœa, ulcerations and erosion of cervix (B). **Carbolic Acid**, pure, over the surface twice a week in simple ulceration (R). **Silver Nitrate**, a serviceable application, but is often abused (B); the solid stick applied to surface, after cleansing and drying with cotton-wool (Wa). **Alum**, as hip-bath, (℔ j ad C j,) and vaginal injection, is of great utility in ulcerations of the os uteri, or of the uterine cavity (Recamier). **Glycerin** 25, Alcohol 12½, and pure Creosote 1 part, an excellent application to ulcers of the neck. **Glycozone**, as an application to ulcerated cervix, is far superior to pure glycerin (Edson). See under LEUCORRHŒA, for manner of application. **Bismuth Subnitrate**, with enough Glycerin to make a thick cream, is the best of all applications for ulceration of the os and cervix uteri (Suesserott). **Vegetable Astringents**, infusions or decoctions of Galls, Oak-bark, Hamamelis, Geranium, Alum-root, etc.; the Glycerite of Tannin, or Iodoform and Tannin, packed around cervix (B).

Uvula.

Tannin, Rhatany or **Zinc**, as astringent lozenges, for relaxed uvula (A). **Amputation**, of elongated part (A).

Vaccination.

Aconite, with **Belladonna** Ointment for erysipelatous redness after vaccination (R). **Zinc Oxide**, dusted over, to allay the subsequent local irritation (Wa); with Pulv. Amyli, equal parts, over the surface. **Lead Acetate**, ʒj to Oj water, as lotion for irritable pock (Foster). **Carbolic Acid**, ʒj to Oj water, as lotion for excessive redness, with burning and itching.

Vaginismus.

Ether, as anæsthetic, to ascertain cause, usually a displacement, fissure, or cellulitis (E). **Hygiene**, sun-baths, hot-water injections, fresh air, removal from husband, etc. (E). **Operation** (Sims'), removal of hymen with scissors and insertion of glass plug till parts are healed, when the cicatrix is to be divided, etc. (E). **Tents** to gradually dilate vagina, may be impregnated with various sedatives (Gallard). **Iodoform** in a suppository, when redness and excoriation. **Belladonna**, the extract, 1 part with 8 or 9 of fresh Lard, if only pain (Gallard).

Vaginitis.

Tannin, the Glycerite in chronic vaginitis of children (R). **Silver Nitrate**, gr. xl to ℥j aquæ, applied within cervical canal, and over the vaginal mucous membrane (E). **Emollient Injections**, with Opium (Goodsell). [Compare GONORRHŒA, LEUCORRHŒA.] **Pinus Canadensis**, the concentrated extract (colorless), locally, has a very soothing influence in acute vaginitis.

Varicella.

Diet, no animal food, milk best, which, with careful attention to the bowels, patient to be kept cool with light covering, and use of a mattress rather than a feather bed, is all the treatment required (A). **Saline Mixture**, if high fever. **Quinine**, during convalescence. **Complications** to be treated symptomatically.

Varicocele.

Hamamelis, appears to have permanently cured one case (R). **Ergot**, gr. ij–vj of Ergotin hypodermically, the needle to be inserted among the affected veins, care being taken not to puncture a vein, is effective; severe pain follows for a few hours (R). **Water**, cold douche to the perineum and buttocks, with suspension of testicles in cold water (R). **Radical Cure**, consists in obliterating the veins by wire ligatures, etc. (Cl).

Varicosis.

Hamamelis, is employed with satisfaction in varicose veins and ulcers (Pf). **Digitalis**, by fomentation, in acute inflammation from varicose ulcers (R). **Ergotin**, injected alongside of vein, but not within it, has cured (B). **Bandage**, or elastic stocking; with cold sponging and rubbing upwards, as palliatives (Cl). [Compare HEMORRHOIDS, ULCERS.]

Variola.

Cimicifuga, is given internally by some, who assert that it prevents pitting (R). **Mercury**, in ointment or plaster, to prevent pitting in semi-confluent, or barely confluent cases (Wa); formerly used (R). **Camphor**, is said to restore the eruption, if retrocedent; in confluent malignant smallpox, camphor alone, or with Opium, may be used for great depression of the vital powers (Wa). **Belladonna**, successfully used both as prophylactic and curative agent (Erasmus Wilson); gr. ½–j every 3, 4 or 6 hours, to dilatation of pupil and some stupor, found effectual (Wa). **Carbolic Acid**, is used with decided advantage (Wa); [See MEASLES.] has been much used on theoretical grounds, but not with success (B). **Ammonium Carbonate**, has had cheering success (Wa). [See SCARLATINA.] **Quinine**, small doses in adynamic states, larger in hyperpyrexia (B). **Chloral**, temperature high, much delirium, and restlessness (B). **Opium**, low, muttering delirium; not so much used now as formerly (B); Morphine in the insomnia of the advanced stage, once or twice only, but not when copious salivation or mucous expectoration (Wa). **Silver Nitrate**, on a sharp-pointed stick, inserted into each vesicle after rupture, to prevent pitting (B); or simply paint skin with a solution of gr. xx to the ℥ (R). **Iodine**, the tincture to prevent pitting, is painted ten times over face if on first day of eruption, 12 if on the second day, 12–16 times if on third day (B). **Collodion**, or solutions of India-rubber or Gutta-percha in Chloroform, to prevent pitting; or cotton-wool dipped into Lime liniment, applied to face or neck (R). **Water**, as cold baths and cold pack, of great utility (B); packing especially on retrocession of rash (R). **External Applications**, as powdered starch, flour, or Zinc Carbonate, 3 parts to 1 of Zinc Oxide with Olive Oil; cold or tepid water with vinegar, sponged over body twice or thrice daily (Wa). **Diet**, tea and dry toast, raw eggs beaten in cold milk, beef-tea, grapes, roasted apples, ripe fruits in season; cold water may be drunk freely. **Fats**, bacon-fat smeared over the face, to allay itching and prevent pitting. [Compare VACCINATION.]

Vertigo.

Digitalis, in small doses, alternately month by month with Tincture of Larch, and a long course of Iron Citrate, and Strychnine, in essential vertigo, without any other head symptoms, and with general depraved nutrition, the most effectual treatment (Wa) **Potassium Bromide**, often controls paroxysmal vertigo, without coexistent spasm, or organic brain-disease (Wa). **Ammonium Bromide**, in an effervescing form with Cascarilla, for vertigo from overwork, where there is usually restlessness, insomnia, depression of spirits, with a sense of impending evil (Wa.) **Alkalies** and **Bitter Tonics**, give the best results in vertigo of gastric origin. **Sodium Bicarbonate**, after meals, tonics before meals. **Strychnine** with Iron, thrice daily, gives good results. **Corrosive Sublimate**, in small doses, with attention to the bowels and diet. **Cod-liver Oil**, for giddiness of the aged, when no serious brain-disease (R). The affection is mostly symptomatic of disorder of the stomach, or of the liver (cholæmia), sometimes of general debility, rarely of disease of the brain (H). **Nitro-glycerin**, gives good results in epileptic vertigo (Br).

Vomiting.

Arsenic, in many forms of stomach vomiting, especially that of alcoholism, and chronic ulcer (B), and in the vomiting of cholera (R); gtt. ss of Fowler's solution, every ½ hour for 6 or 8 doses, often relieves vomiting after a debauch, the A. M. vomiting of drunkards, and that of pregnancy (Smith). **Nux Vomica**, stands next to Arsenic, is useful in many ways (B); may be given with Ipecac, especially when tongue coated (R). **Ipecacuanha**, in small doses, will arrest certain kinds—a curious fact; especially useful in certain forms, ♏j of Vinum Ipecac every ½ hour or more (B, R, P); in sick stomach of nervous origin, minute doses are of undoubted value (W). **Cocaine**, in doses of gr. ¼ thrice daily, controlled the vomiting of gastric carcinoma, after all other means failed (Meigs); 10-minim doses of a 4 per cent. solution every hour, of inestimable value in the vomiting of yellow fever (Jennings). **Potassium Nitrate**, one of the surest remedies against vomiting and nausea, gr. ¼ in ℥ss of cold water every 4 or 5 minutes, until relieved, in all cases, except reflex ones, and those due to irritant poisons (Moore). **Mercury**, gr. ⅓ of Gray Powder every two hours, especially in children with clayey stools (R); Calomel, gr. j to Oj aquæ, first dissolved in ℥j of Lime water—a teasp. every ten minutes for the regurgitation of food in nursing children (Smith). **Opium**, will arrest many kinds, best in that of biliary or renal calculi, dysmenorrhœa, sea-sickness, pregnancy; Morphine, hypoder., gr. $\frac{1}{12}$ to ⅙ (P). **Bryonia**, bilious vomiting and headache (P). **Veratrum Album**, in vomiting and purging of summer diarrhœa (R). **Hydrocyanic Acid**, often very serviceable in nervous vomiting, acts promptly if at all (R). **Hydrobromic Acid**, ʒss in ℥j of water, four times daily, useful for the vomiting due to gastric ulcer. **Chloroform**, ♏ij–v, on sugar, for non-inflammatory vomiting (R); [See YELLOW FEVER for formula.] **Bromides**, in cerebral vomiting only; not in the gastric form (B); Potassium Bromide in that of uterine disease (W): Strontium Bromide is excellent in vomiting due to various causes; gr. x–xv twice daily with meals. **Phenocoll**, with Piperazin, gr. xv of each daily in a pint or more of carbonated water, was of great service in a case of uncontrollable vomiting which had resisted every known remedy. **Menthol**, has successfully checked persistent vomiting after all the usual remedies had failed, in the hands of many well-known observers; ♏x of a 20 per cent. solution in Olive Oil, dropped on powdered sugar, each dose being about 1 grain (Weil). **Sulphurous Acid**, ♏v–ʒj, well diluted, or less effectively, Sodium Sulphite; Sulphites often curative in vomiting of sarcinæ and acid matter, due to acid fermentation of starchy elements (B). **Cocculus Indicus**, efficient in cephalic vomiting (P). **Iris**, in vomiting with blinding right supraorbital pain, liver deranged (P). **Bismuth**, in many forms of vomiting in children, especially when from gastric catarrh (R). **Carbolic**

Acid, with or without Bismuth (B); in nervous vomiting (W). **Creosote**, in the vomiting of cancer, gastric ulcer, etc. (R); gtt. j–ij (W). **Cinnamon** or **Cloves**, will check vomiting (P). **Calumba**, in vomiting from kidney disease and renal calculi; frequently allays that of pregnancy and dentition (P). **Serpentaria**, for bilious vomiting (P). **Cerium Oxalate**, in that of pregnancy and from cancer (B); gr. j every three hours (R). **Sodium Bicarbonate**, ℨss–j to a pint of milk, for infants, especially if constipated (R). **Ammonium Carbonate**, may relieve when vomited matter is acid (B). **Milk and Lime Water**, often relieves when other methods fail; also the effervescing soda powders in the vomiting of acute diseases, and the exanthemata (B). **Alcohol**, iced brandy or champagne in spoonful doses every ½ hour in vomiting of cholera, pregnancy, and delirium tremens (B). **Counter-Irritation**, at epigastrium (R). **Nutrient Enemata** (B). [See ENEMATA.] **Ice**, sucked, with horizontal posture, absolute rest and quiet (Wa); iced champagne, ℥ss every ¼ hour (B). **Pepsin**, for vomiting of food after meals; gr. x–xv before or during meals. **Kumyss**, has proved efficacious when no other food would remain on the stomach. [Compare the list of Anti-emetics, on page 37, also the articles entitled HEMATEMESIS, NAUSEA, SEA-SICKNESS, VOMITING OF PREGNANCY.]

Prescriptions.

℞. Ac. Hydrocyan. Dil., . . . ℨj.
Aquæ Laurocerasi, ... ℥ij.
M. Sig.—A teasp. every 2 hours, for nervous vomiting.

℞. Ac. Hydrobromici Diluti, . ℥ij.
Sig.—Half a teasp. in a winegl. of water, 4 times daily.

Vomiting of Pregnancy.

Ipecacuanha, or **Nux Vomica**, either will generally succeed where the other fails (R); no other remedy of equal value to Ipecac (P). **Nux Vomica**, is useful but often fails, gtt. ss–j every hour or two in water (R); in very minute doses (S); gtt. ij–iij of the tincture every two or three hours, or gtt. x before each meal, with very hot water as a drink, is the best treatment (Parvin). **Arsenic**, Fowler's solution, gtt. j before each meal, will often relieve, when vomiting of food, retching and straining, with blood and pain (B). **Creosote**, checks the vomiting (R). **Carbolic Acid**, drop-doses of crystals liquefied by heat, in mucilage ter die (Wa). **Staphisagria**, has subdued when other remedies failed (P). **Cerium Oxalate**, gr. j every three hours (R); ordinary doses far too small, give as high as 10 grains (B). **Morphine**, hypodermically in severe vomiting (R). **Pepsin**, has been used with success. **Ingluvin**, seems almost specific (B). **Potassium Bromide**, is often efficacious (W); ℨss doses thrice daily, exceedingly effective in the combined diarrhœa and vomiting of pregnancy. The first dose should be given an hour before rising. **Strontium Bromide**, proved entirely successful in severe cases; gr. xv in water, with meals, twice daily, for a month. **Hydrocyanic Acid**, often the best remedy (P). [See *ante*, VOMITING.] **Copper Sulphate**, sometimes effective, not more than gr. $\frac{1}{20}$ ter die (B). **Iodine**, ♏v of the tincture in ℥ss of sweetened water repeated in ½ hour, of magical effect in a bad case which had resisted every other treatment; is often useful (B). **Menthol**, has proven very successful in obstinate cases. [See formula below.] **Cocaine**, locally to cervix, promptly cured a most intractable case of several months' duration, though it failed when used internally (Boys); has given excellent results when used internally. [See formula below, or may use tablet triturates of gr. $\frac{1}{10}$ each.] **Calumba**, as tincture often useful, drop-doses every hour or two (B). **Bismuth**, and Carbolic Acid, are effective (B). **Atropine**, frequently effective (R); never failed to give relief in many years of using it (Boys). **Ether**, sprayed over the epigastric region and the corresponding part of the spinal column, for 3 to 5 minutes every 3 hours, gives immediate relief (Lubelsky). **Pop-corn**, is a godsend in this complaint, having acted marvellously in several cases in which I have used it (Sweringen). **Aconite**, in full doses, is often very successful (W). **Dilatation**, of the cervical canal, by the index finger, is regarded as extremely efficient, and reasonably safe; it may bring on abortion, if too extensive, but from records of several cases since 1875, it may be said that it is a safe and sure remedy (Copman). **Ice-bag** to spine, an efficient measure (R). **Vesication**, a single blister over the 4th and 5th dorsal vertebræ, never failed for many years to put an end at once to the sickness of pregnancy for the whole remaining period of gestation (Harkin, in *Lancet*).

Prescriptions.

℞. Atropinæ Sulphatis, ... gr. j.
Morphinæ Sulphatis, ... gr. iv.
Acidi Sulphurici Aromat., . ʒ iij.
Aquæ, ... ʒ v.
M. Sig.—Ten to twenty drops, thrice daily. (*Boys.*)

℞. Bismuthi Subnitrat., . . . gr. clx.
Cerii Oxalatis, ... gr. xl.
Morphinæ Sulphatis, . . . gr. jss.
Syrupi, et Acaciæ, q. s. *ad* ℥ ij.
M. ft. emulsum. Sig.—A teasp. every hour until vomiting ceases. (*Van Valzah.*)

℞. Mentholi, ... gr. xx.
Alcoholis, ... ʒ vjss.
Syr. Simplicis, . . q. s. *ad* ℥ ij.
M. Sig.—ʒ j every hour. (*Potter.*)

℞. Cerii Oxalatis, ... gr. xij.
Ipecacuanhæ, ... gr. xv.
Creosoti, ... gr. xxiv.
M. ft. pil. no. xij. Sig.—One every hour. (*Goodell.*)

℞. Cerii Oxalatis, ... gr. xxiv.
Ext. Hyoscyami, ... gr. xxxvj.
M. ft. pil. no. xij. Sig.—One pill twice daily. (*Goodell.*)

℞. Cocainæ Hydrochlor., . . gr. xv.
Acidi Carbolici, ... ♏x.
Aq. Cinnamomi, ... ℥ ss.
Syr. Zingib., . . . q. s. *ad* ℥ j.
M. Sig.—10 drops gradually increased to 20, in a little water every hour until relieved, then every 2 or 3 hours. (*Potter.*)

Vulva.

Sodium Hyposulphite, an unfailing remedy in lotion for aphthæ of the vulva (R). **Arsenic**, much used for eczema (T). **Lead Acetate**, a concentrated solution in Glycerin, for eczema of vulva (T). [Compare PRURITUS, PRURIGO.]

Vulvitis.

Alum, as lotion in vulvitis of children; gr. lx–Oj aquæ, or less strong if found to increase discharge (R). **Lead**, solutions of the Acetate as wash, after the acute stage has subsided. **Lime Water**, as wash (R). [Compare VAGINITIS.]

Warts.

Thuja, worthy of recommendation in the highest terms, for the cure of warts with a narrow base and pendulous body; a strong tincture locally three times a day, for one or two weeks, with 5 drops in a wineglassful of water internally, night and morning (P). **Iron**, Tincture of the Chloride and dilute HCl Acid, equal parts applied night and morning, very effective (Bulkley). **Nitric Acid**, ʒj–ij of the dilute acid to a pint of water, as wash, to keep small syphilitic warts constantly moist (R). **Sabina**, as caustic (P); j to ij parts of Alum (Wa). **Rue**, the Oil, with honey, locally (P). **Arsenous Acid**, as a caustic; enough to be used to excite active inflammation; or Liq. Arsenicalis painted over warts (R); may be taken internally (B). **Mercurial Ointment**, containing 5 per cent. of Arsenic, or a plaster having in each 8 square inches 154 grains of Arsenic and 77 grains of Mercury (Unna). **Tannin**, and **Burnt Alum**, equal parts, powdered over warts twice daily, gives good results. **Chromic Acid**, gr. 100 to ℥j aquæ, with a glass rod, to saturate diseased growth; remove any superfluous acid, dress with dry lint (R, Wa). **Mercuric Nitrate**, locally (R). **Silver Nitrate**, as caustic, but is usually too superficial (R). **Dermal Curette**, is much used in Vienna to remove warts by enucleation. **Strangulation**, by tying a string tightly around the base, will cause them to drop off in a few days. **Heat**, is a most thorough measure for their radical removal; it may be best applied by touching the wart 3 or 4 times daily with the hot end of a cigar; the first few applications only give pain. **Caustic Alkalies**, locally (R); a saturated solution of Potassa Fusa, carefully applied by a brush or sponge fastened to the end of a stick, is to be preferred (Wilson). [Compare CONDYLOMATA.]

Wen.

Extirpation, the least troublesome and most speedily effective method. Run a scalpel through it, seize the cut edge of the cyst, and gently tear it out with a touch or two from the knife. Dressing of lint and Carbolic Oil to cause suppuration and contraction (D).

Worms.

Naphtalin, an excellent all-round anthelmintic, of high value for ascarides and tænia, thoroughly reliable for all kinds of intestinal worms, giving prompt and complete results invariably, with entire absence of all unpleasant symptoms; a single dose of gr. xv removed tape-worms entire (Mirowicz): for adults a dose of Castor Oil should follow, but for children it is preferable to give both together. **Filix Mas** to be taken on an empty stomach, for tape-worm, and followed by a purge (P). **Pepo**, ℥ij as emulsion, taken fasting, one of the most efficient remedies against tænia (B). **Santonin**, the best anthelmintic, a laxative in the morning, fast all day, a dose (gr. ss–v) of Santonin and Calomel, or Troches of Santonin (j–x), at bedtime, a Senna draught next morning, for ascarides (P); for round and thread-worms, give in Castor Oil by mouth, or as injection (R). **Iron**, the Syrup of the Iodide internally and a solution of the tincture locally, for ascarides (B); the Tinct. Ferri Chlor. ℥ss ad Oj aquæ, a good injection for thread-worms, coagulating their albumen (R). **Quassia**, the infusion an effectual injection, conjoined with simple bitters internally, for ascarides (R). **Pelletierine**, the alkaloid of Granatum, is by far the best vermifuge for a tape-worm, repeated after a week for a second worm, as many as 3 having been found in one patient (Da C): gr. xv–xx of the Tannate, followed in a few hours by Castor Oil (R). **Chloroform**, a very efficient tæniafuge, ʒj in ℥j of mucilage, after 20 hours' fasting, followed one hour later by ℥j of Castor Oil, this is an adult dose, ʒj should never be exceeded (Wilde). **Lime Water**, as injection for thread-worms (R); ℥iij–iv repeated, for ascarides (Wa). **Sodium Chloride**, in ʒss doses on empty stomach, expels ascarides and prevents reproduction (Wa). **Quinine**, as a tonic, also cold sponging, out-door exercise and judicious diet; useful probably by preventing the production of the abundant mucus which favors the growth of worms (R); especially useful for ascarides, also as injection for thread-worms and tænia (Wa). **Ignatia**, for convulsive symptoms (P). **Kamala (Rottlera)**, excellent for tænia, requires no purge (P); gr. cl–clxxx for an adult (Wa). **Eucalyptus**, as injection, for ascarides (B). **Aloes**, are efficacious for ascarides (P). **Ailanthus**, decoction of fresh bark, for tænia (B). **Tonics**, as Cod-liver Oil and Iron to restore intestinal canal to healthy condition (R). **Turpentine**, as poison to tape- and thread-worms (R); also for tænia (Wa). **Scammony**, for thread-worms in rectum (R); with Calomel, effective (Wa). **Tannin**, as Catechu, Kino, Red-gum, Rhatany, Hæmatoxylum, in injections to destroy thread-worms (R). **Alum**, as solution, for injection (R). **Ammonium Chloride**, to prevent formation of thick mucus which serves as nidus for worms (R). **Valerian**, especially when convulsions (R). [Compare the List of Anthelmintics on page 41.]

Prescriptions.

℞. Chloroformi,
Ext. Filicis Maris, . . . āā ʒj.
Emuls. Ol. Ricini (50 per cent.), ... ℥iij.
M. Sig.—One dose after 24 hours' fasting. Does just as well if Male Fern be omitted. (*Smith.*)

℞. Ext. Spigeliæ Fl., ... ℥j.
Ext. Sennæ Fl., ... ʒss.
M. Sig.—A teasp. to a child of 3 to 5 years. (*Smith.*)

℞. Ext. Spigeliæ et Sennæ Fl., ℥j.
Santonini, ... gr. viij.
M. Sig.—A teasp. to a child of 5 years. (*Smith.*)

℞. Granati Corticis, ... ℥ij.
Ft. infusum. Sig.—To be taken before 11 A. M.—and followed after 2 hours by—

℞. Ol. Ricini, ... ℥iij.
Ol. Terebinth., ... ʒj.
Ext. Filicis Maris Æther., ʒj.
M. ft. haustus.
Fasting unnecessary. (*Wilde.*)

℞. Magnesii Sulphat., ... ℥ij.
Sodii Chloridi, ... ʒss.
M. Sig.—An ounce in half a glass of water, with gtt. v of Carbolic Acid, night and morning, for ascarides. Persevere. (*Barkley.*)

Wounds.

Arnica, very useful for external bruises and cuts, also for internal injuries; unites surfaces very rapidly after amputations; the infusion or decoction best (P); very effectual (Wa). **Aconite**, valuable in surgical fever (P). **Carbolic Acid** solutions check suppuration, and correct fetor (B). **Bismuth Subiodide**, dusted into a wound, one of the most efficient antiseptics, non-irritant, and a prompt stimulant of granulations; an excellent dressing for wounds after approximation of the edges, the powder to be dusted thickly over the edges, and thoroughly smeared with Flexible Collodion. **Dermatol** (Bismuth Subgallate), is an excellent non-irritant vulnerary, having great stability, and valuable drying and bactericidal qualities. **Europhen**, is an ideal application to sores and wounds, also for the many protective requirements of minor surgery; is used as a dusting powder, or as a 5 to 10 per cent. ointment, with Lanolin as a base. **Aristol**, is very efficient, or a mixture of Aristol and Europhen, equal parts of each. **Ammonium Carbonate**, gr. v hypodermically in the vicinity of wounds caused by poisoned arrows, repeatedly used with success in saving life, by Dr. Parke, the surgeon to Stanley's last expedition in Africa. **Sulphurous Acid**, in solution, diluted or not, constantly applied (R); in solution or by fumigation, is regarded by some as superior in efficacy to Carbolic Acid, and less irritant (Wa). **Salicylic Acid**, Thiersch prefers it to Carbolic; may be applied pure in powder to gangrenous and sloughing wounds (B). **Mercury**, the Bichloride, gr. vijss to quart j of hot water, stirred with a stick, makes a solution of 1 to 2000; the best of all antiseptics, for washing a wound or cavity, and for saturating the dressings. [See List of Antiseptics on page 52]. **Boracic Acid**, also applicable as Carbolic Acid (B). **Balsam of Peru**, excellent for closing recent wounds (P). **Benzoin**, the basis of healing "Balsams" (P). **Aloes**, topically as a slight stimulant; often purges (R). **Gum Tragacanth**, a thick aqueous solution to granulating surfaces, to protect them from the air (Wa). **Opium**, to quiet intestinal movements in wounds of the abdomen (R); forwards the reparative processes (P). **Tannin**, or Glycerite of Tannin, to coat over wounds (R). **Collodion or Liquor Gutta-perchæ**, to secure primary union of incised wounds (B); as protective covering (P). **Iodoform**, powdered and dusted over sloughing wounds, irritable and ill-conditioned ulcers and sores (B); Iodoform 1, Collodion 9 parts, painted on a superficial wound while edges are held together (Gross); may be painted over edges when stitched together; gives excellent results. **Aristol**, an excellent substitute for Iodoform, and odorless. **Galvanic Couplet**, to wounds of indolent form (B). [See BEDSORES.] **Nitric Acid**, as escharotic for gangrene (B). **Turpentine**, one of the most efficient applications in hospital gangrene (B). **Aloes**, pulverized fine, as a dressing for wounds, favoring cicatrization and closing them, also relieving the pain at once; requires removal only at long intervals (Millet). **Poultices**, are often abused; of Yeast or Charcoal best for foul wounds (B). **Alcohol**, an excellent antiseptic dressing when suppuration; also favors cicatrization of open wounds (B). **Water**, in universal use as dressing; cold water often abused, hot-water dressing as advocated by Hamilton, promises better results (B). **Turkish Baths**, for pain in the seat of old wounds (R). **Ice and Salt**, applied to wounds prevents inflammation (R). [Compare HEMORRHAGE, INFLAMMATION, PYÆMIA, SURGICAL FEVER, GANGRENE, ULCERS.]

Prescriptions.

℞. Acidi Tannici, ... ℥ij.
Alcoholis Absolut., . . . ℥ss.
Ætheris, ... ℥ijss.
Collodii, ... ʒxij.
M. Sig.—Styptic Collodion.

℞. Collodii, ... ℥j.
Olei Ricini,
Acidi Carbolici, . . . āā ℥ss.
M. Sig.—Carbolized Collodion, for wounds.

Yellow Fever.

Treatment must all be done at the beginning, no time to be lost,—Cold sponging early and frequently repeated, Calomel, Quinine and Salines at the start, Potassium Acetate for the kidneys, Morphine for gastric irritation, the feet to be in mustard water (Da C). **Diaphoretics** and **Diuretics**, also **Laxatives**, are very important throughout the disease (Da C). **Pilocarpine**, in dose of gr. ¼ hypodermically, in first stage, carried to the induction of emesis and catharsis, as well as that of diaphoresis, the most efficient treatment known, absolutely jugulating the paroxysm (Habersmith). **Mercury**, a Calomel purgative, gr. ss, 2 or 3 times on the first day, followed by a warm-water enema, is good treatment (B); has many advocates, and many opponents (Wa); should generally be abstained from (S). **Duboisine**, gr. $\frac{1}{80}$, subcutaneously, the most efficient hypnotic and calmative (B). **Turpentine**, when cardiac weakness, depression of vaso-motor system, dissolved state of the blood; ♏x–ʒss; small doses, with Tinctura Ferri Chloridi, in hemorrhagic form (B). **Quinine**, has some strong evidence in its favor as an abortive agent, one large dose (gr. xxx–xl) with Opium, at outset (Wa); is not a specific; may hasten recovery in mild cases (S); gr. xx per rectum, to reduce temperature (B). **Liquor Calcis**, with milk, has been found efficient for the vomiting (Wa). **Capsicum**, to obviate the black vomit, is highly spoken of (Wa). **Cocaine**, for the vomiting, nothing equals it in efficiency, it also acting as a diuretic, 10-minim doses of a 4 per cent. solution, by mouth, every hour for 2 or 3 doses, acts like a charm (Jennings). **Chloroform**, for the vomiting, a few drops to prepare the stomach for reception and retention of food; its effects transitory, has to be repeated before each meal (Wa); the Ammoniated Chloroform in zymotic pyrexia, its action is sedative, analgesic and antipyretic (Richardson). **Carbolic Acid**, by stomach and hypodermically, remarkably efficacious, even after the ominous "coffee-grounds" vomit (Lecaille). **Chlorodyne**, is excellent for restlessness, insomnia, irritability of stomach (A). **Veratrum Viride**, gtt. j–x hourly, according to age, till pulse and temperature subdued; successfully used in connection with Mercury, etc. (White and Ford). **Stimulants**, only in typhus form (B); in 3d stage must be bold, prompt and continued (Da C). **Diet**, of the blandest description (A); Milk and Lime-water, half and half, in small quantities, is the best aliment; in convalescence, the utmost care is necessary in giving aliments (B). **Rest** is very important (Da C). **Iced Champagne**, in tablespoonful doses every ¼ hour, for the vomiting (B). **Purgation**, throughout the disease (Da C). [Compare REMITTENT FEVER.]

Prescriptions.

℞. Potassii Carbonat., . . . gr. xx.
Tinct. Opii Camphorat., . ʒj.
Aquæ, ... ℥viij.
M. Sig.—℥j every hour or two, as a diaphoretic. (*Dickson.*)

℞. Chloroformi,
Tinct. Camphoræ, . . . āā ℥ss.
M. Sig.—Two drops as required for the vomiting.

APPENDIX.

LIST OF CONTRACTIONS AND LATIN PHRASES USED IN WRITING PRESCRIPTIONS, WITH THE CORRESPONDING ENGLISH EQUIVALENTS.

Contraction.	Word or Phrase.	English Equivalent.
A., aa.	Ana	Of each.
Abd.	Abdomen	The belly.
Abs. feb.	Absente febre	Fever being absent.
Acc.	Accurate	Accurately.
Ad	Ad	To, *or* up to.
Ad 2 vic.	Ad duas vices	At twice taking.
Ad sec. vic.	Ad secundum vicem	To the second time.
Ad 3 tiam vic.	Ad tertiam vicem	For the third time.
Add.	Adde	Add.
Add.	Addantur	Let (them) be added.
Add.	Addendus	To be added.
Add.	Addendo	By adding.
Ad def. an.	Ad defectionem animi	To fainting.
Ad grat. acid.	Ad gratam aciditatem	To an agreeable sourness.
Adhib.	Adhibendus	To be administered.
Adjac.	Adjacens	Adjacent.
Ad lib.	Ad libitum	At pleasure.
Admov.	Admove	Apply.
Admov.	Admoveatur	Let (it) be applied.
Admov.	Admoveantur	Let (them) be applied.
Ad sat.	Ad saturandum	To saturation.
Adst. feb.	Adstante febre	The fever being on.
Adv.	Adversum	Against.
Æg.	Æger	The sick one, the patient.
Aggr. feb.	Aggrediente febre	While the fever is coming on.
Agit. vas.	Agitato vase	The vial being shaken.
Aliq.	Aliquot	Some.
Alt.	Alter	The other.
Alt. hor.	Alternis horis	Every other hour.
Aluta	Aluta	Leather.
Alv.	Alvus	The belly.
Alv. adst.	Alvo adstricta	The bowels being confined.
Amp.	Amplus	Large.
Ampul.	Ampulla	A large bottle.
App.	Appone	Apply, Lay *or* put on.
Aq.	Aqua	Water.
Aq. astr.	Aqua astricta	Frozen water.
Aq. bull.	Aqua bulliens	Boiling water.
Aq. com.	Aqua communis	Common water.
Aq. ferv., *vel* calid.	Aqua fervens, *vel* calida	Hot water.
Aq. fluv.	Aqua fluviatilis	River water.
Aq. font.	Aqua fontana, *vel* fontis	Spring water.

Contraction.	Word or Phrase.	English Equivalent.
Aq. mar.	Aqua marina	Sea water.
Aq. niv.	Aqua nivialis, *vel* nivalis	Snow water.
Aq. pluv.	Aqua pluvialis	Rain water.
Aqualis	Aqualis	Pertaining to water.
Aut	Aut	Or.
B. A.	Balneum arenæ	Sand-bath.
B. M.	Balneum maris	Salt-water bath.
B. V.	Balneum vaporis	Vapor-bath.
Bals.	Balsamum	Balsam.
B. B.	Barbadensis	Barbadoes.
Bene	Bene	Well.
Bib.	Bibe	Drink (thou).
Bid.	Biduum	Two days.
Bis	Bis	Twice.
Bis die	Bis in die, *vel* dies	Twice a day.
Bol.	Bolus	A large pill.
Bull.	Bulliat, *vel* Bulliant	Let boil.
But.	Butyrum	Butter.
C.	Cum	With.
Cc.	Centimeter cubicum	Cubic centimeter.
Cærul.	Cæruleus	Blue.
Calef.	Calefactus	Warmed.
Cal.	Calomel, *vel* Calomelas	Mild Chloride of Mercury.
Cap.	Cape	Take (thou).
Cap.	Capiat	Let him take.
Capsul.	Capsula	A capsule.
Caute	Caute	Cautiously.
Ccu.	Cucurbita	A cupping-glass.
Chart.	Charta	Paper.
Chartul.	Chartula	A small paper.
Cib.	Cibus	Food.
Coch., Cochleat.	Cochlear, *vel* Cochleare, *vel* Cochleatim	A spoonful, By spoonfuls (ʒj).
Coch. amp.	Cochleare amplum	A dessertspoonful (ʒij).
Coch. mag.	Cochleare magnum	A tablespoonful (℥ss).
Coch. med. *vel* mod.	Cochleare medium, *vel* modicum	A dessertspoonful (ʒij).
Coch. parv.	Cochleare parvum	A teaspoonful (ʒj).
Coct.	Coctio	Boiling.
Col.	Cola	Strain.
Colatur.	Colaturæ	To the strained liquor.
Colat.	Colatus	Strained.
Colet.	Coletur	Let it be strained.
Colent.	Colentur	Let them be strained.
Collut.	Collutorium	A mouth-wash.
Collyr.	Collyrium.	An eye-wash.
Coloret.	Coloretur	Let it be colored.
Comp.	Compositus	Compound, compounded.
Con., Concis.	Concisus	Cut.
Conf.	Confectio	Confection.
Cong.	Congius	A gallon.
Cons.	Conserva	A conserve, *also* Keep (thou).
Cont. rem.	Continuentur remedia	Let the medicines be continued.
Contus.	Contusus	Bruised.
Coq.	Coque, Coquantur	Boil, let them be boiled.
Coq. ad med. consump.	Coque ad medietatis consumptionem	Boil to the consumption of half.
Coq. S. A.	Coque secundem artem.	Boil according to art.
Coq. in S. A.	Coque in sufficiente aquæ	Boil in sufficient water.

Contraction.	Word or Phrase.	English Equivalent.
Cor.	Cor, cordis	The heart.
Cort.	Cortex, corticis	The bark.
Cox.	Coxa	The hip.
Crast.	Cras, Crastinus	To-morrow.
Cras mane sumend.	Cras mane sumendus	To be taken to-morrow morning.
Cras nocte	Cras nocte	To-morrow night.
Cras vesp.	Cras vespere	To-morrow evening.
Crast.	Crastinus	For to-morrow, early.
Cru.	Cruor	Blood, gore.
Cucur.	Cucurbita	A cupping-glass.
Cuj.	Cujus, Cujus-libet	Of which, of any.
Cum	Cum	With.
Cyatho theæ	Cyatho theæ	In a cup of tea.
Cyath., C. vinar.	Cyathus, *vel* C. vinarius	A wine-glass (℥j–ij).
D., Det.	Da, Detur	Give, let be given.
De	De	Of, *or* from.
Deaur. pil.	Deaurentur pilulæ	Let the pills be gilded.
Deb. spiss.	Debita spissitudo	A proper consistence.
Deb.	Debitus	Due, proper.
Dec.	Decanta	Pour off.
Decem.	Decem, Decimus,	Ten, The tenth.
Decoct.	Decoctum	A decoction.
Decub.	Decubitus	Lying down.
De d. in d.	De die in diem	From day to day.
Dein.	Dein *vel* Deinde	Thereupon.
Deglut.	Deglutiatur	Let be swallowed.
Dej. alv.	Dejectiones alvi	Stools.
Dent.	Dentes	The teeth.
Det. in dup.	Detur in duplo	Let twice as much be given.
Dext.	Dexter, Dextra	The right.
Dieb. alt.	Diebus alternis	Every other day.
Dieb. tert.	Diebus tertiis	Every third day.
Diluc.	Diluculo	At break of day.
Dil.	Dilue, Dilutus	Dilute (thou), Diluted.
Dim.	Dimidius	One-half.
D. P., *vel* Dir. prop.	Directione propriâ	With a proper direction.
D. in p. æq.	Dividatur in partes æquales	Let it be divided into equal parts.
Divid.	Dividendus, -a, -um	To be divided.
Dol.	Dolor	Pain.
Don.	Donec	Until.
Don. alv. bis. dejic.	Donec alvus bis dejiciatur	Until the bowels have been twice evacuated.
Don. alv. sol. ft.	Donec alvus soluta fuerit	Until the bowels shall be opened.
Don. dolor neph. exulav.	Donec dolor nephriticus exulaverit	Until the nephritic pain is removed.
D.	Dosis	A dose.
Dr., ʒ	Drachma	A drachm (60 grains).
Dur. dolor.	Durante dolore	While the pain lasts.
Ead.	Eadem (fem.)	The same.
Eburn.	Eburneus	Made of ivory.
Ejusd.	Ejusdem	Of the same.
Elect.	Electuarium	An electuary.
Em.	Emesis	Vomiting.
En.	Enema	A clyster *or* enema.
Enem.	Enemata	Clysters.
Et	Et	And.
Evan.	Evanuerit	Shall have disappeared.
Exhib.	Exhibeatur	Let it be exhibited.

Contraction.	Word or Phrase.	English Equivalent.
Ext.	Extende	Spread.
Ext. sup. alut. moll.	Extende super alutem mollem	Spread upon soft leather.
Ext., Extr.	Extractum	An extract.
Extr.	Extrahe	Extract thou.
F.	Fac	Make.
Ft.	Fiat, Fiant (*pl.*)	Let it (*or* them) be made.
F. pil. xij	Fac pilulas duodecim	Make 12 pills.
Far.	Farina	Flour.
Fas. lint.	Fascia lintea	A linen bandage.
Fascic.	Fasciculus	A small bundle.
Febr.	Febris	Fever.
Febr. dur.	Febre durante	During the fever.
Fem. intern.	Femoribus internis	To the inner thighs.
Ferv.	Fervens	Boiling.
Ft. cataplasm.	Fac cataplasmatem	Make a poultice.
Ft. cerat.	Fiat ceratum	Let a cerate be made.
Ft. chart. xij	Fiant chartulæ xij	Let 12 powders be made.
Ft. collyr.	Fiat collyrium	Let an eye-wash be made.
Ft. emp. vesic.	Fiat emplastrum vesicatorium	Let a blister be made.
Ft. emuls.	Fiat emulsum	Let an emulsion be made.
Ft. en.	Fiat enema	Let an enema be made.
Ft. inject.	Fiat injectio	Let an injection be made.
F. L. A.	Fiat lege artis	Let it be made by the rules of art.
Ft. mas. div. in pil. xij	Fiat massa, et divide in pilulas xij	Let a mass be made, and divide it into 12 pills.
Ft. pil. xij	Fiant pilulæ xij	Let 12 pills be made.
Ft. pulv.	Fiat pulvis	Let a powder be made.
Ft. pulv. xij	Fiant pulveres xij	Let 12 powders be made.
Ft. pulv. in chart. xij div.	Fiat pulvis in chartulas xij dividenda	Let a powder be made to be divided into 12 little papers.
Ft. sol.	Fiat solutio	Let a solution be made.
Ft. suppos. iv	Fiant suppositoria iv	Let 4 suppositories be made.
Ft. troch. xxiv	Fiant trochisci xxiv	Let 24 troches be made.
Ft. ung.	Fiat unguentum	Let an ointment be made.
Ft. venesec.	Fiat venesectio	Let a bleeding be done.
Fict.	Fictilis	Earthen.
Filtra	Filtra	Filter (thou).
Filt.	Filtram, Filtrum	A filter.
Fistul. arm.	Fistula armata	A syringe ready for use.
Fluid., Fl.	Fluidus	Liquid.
Form.	Formula	A prescription.
Frust.	Frustillatim	In small pieces.
Fuerit	Fuerit	Shall have been.
Garg.	Gargarysma	A gargle.
Gelat. quav.	Gelatinâ quavis	In any kind of jelly.
Ging. incid.	Gingivas incide	Lance (or cut) the gums.
Gm.	Gramma	A gramme.
gr.	Granum, Grana	A grain, grains.
gr. vj pond.	Grana sex pondere	Six grains, by weight.
Grad.	Gradatim	By degrees, gradually.
Grat.	Gratus	Pleasant.
Grum.	Grumus	A clot (of blood).
Gtt.	Gutta, Guttæ, Guttas	A drop, Drops.
Guttat.	Guttatim	By drops.
Gtt. quibusd.	Guttis quibusdam	With a few drops.
H.	Hora	An hour.
Har. pil. sum. iij	Harum pilularum sumantur tres	Let three of these pills be taken.

Contraction.	Word or Phrase.	English Equivalent.
Haust.	Haustus	A draught.
H. p. n.	Haustus purgans noster	My own purgative draught.
Hebdom.	Hebdomada.	A week.
Herb.	Herba	An herb.
Herb. recent.	Herbarum recentium	Of fresh herbs.
Heri	Heri	Yesterday.
Hic, Hæc, Hoc	Hic, Hæc, Hoc	This.
Hirudo	Hirudo	A leech.
Hirud. app.	Hirudines appone	Apply leeches.
Hor. som.	Horâ somni	At the hour of sleep.
Hor. xj matut.	Horâ undecimâ matutinâ	At the eleventh hour of the morning.
Hor. decub.	Horæ decubitûs	At bedtime.
Hor. j spat.	Horæ unius spatio	After one hour.
Hor. interm.	Horis intermediis	In the intermediate hours.
Id.	Idem	The same.
Idon.	Idoneus	Proper.
Imp.	Impone	Lay on, Apply.
Impr.	Imprimis	First.
Inc.	Incide, Incisus	Cut (thou), Being cut.
Ind.	In dies	Daily, *or* From day to day.
Infun.	Infunde	Pour in.
Infus.	Infusum	An infusion.
Injec.	Injectio	An injection.
Injic. enem.	Injiciatur enema	Let a clyster be given.
In pulm.	In pulmento	In gruel.
Instar.	Instar	As big as.
Inter	Inter	Between.
Int.	Internus, -a, -um	Inner, *or* Internal.
Intus	Intus	Inwardly.
Jam	Jam	Now.
Jul.	Julepus, Julepum	A julep.
Juscul.	Jusculum	A broth.
Jux.	Juxta	Near to.
Kal. ppt.	Kali præparatum	Prepared Potash, Potassium Carbonate.
Lac.	Lac, Lactis	Milk, of Milk.
Lag.	Lagena	A flask, *or* bottle.
Lan.	Lana	Flannel.
Lang.	Languor	Faintness.
Lat. dol.	Lateri dolenti	To the painful side.
Lb., ℔	Libra	A pound.
Lect.	Lectus	A bed.
Lig.	Ligatura	A ligature.
Linim.	Linimentum	A liniment.
Lint.	Linteum	Lint.
Liq.	Liquor	A solution.
Lot.	Lotio	A lotion.
M.	Misce	Mix (thou).
M., Man.	Manipulus	A handful.
M., Min.	Minimum	A minim.
Mac.	Macera	Macerate.
Mag.	Magnus	Large.
Mane	Mane	In the morning.
Mane primo	Mane primo	In the very early morning.
Manus	Manus	The hand.
Mass.	Massa	A mass, *or* pill-mass.
Matut.	Matutinus	In the morning.
Med.	Medius	Middle.
Mens.	Mensura	By measure.

Contraction.	Word or Phrase.	English Equivalent.
Mic. pan.	Mica panis	Crumb of bread.
Min.	Minimum	A minim.
Minut.	Minutum *	A minute.
Mis.	Misce	Mix (thou).
Mist.	Mistura	A mixture.
Mit.	Mitte	Send.
Mit.	Mittatur	Let (it) be sent.
Mit.	Mittantur	Let (them) be sent.
Mit. sang. ad uncias xij salt.	Mitte sanguinem ad uncias duodecim saltem	Take away blood to 12 ounces at least.
Modic.	Modicus	Middle-sized.
Mod. præsc.	Modo præscripto	In the manner prescribed.
Mor.	Mora	Delay.
Mor. dict.	More dictu	In the manner directed.
Mor. sol.	More solito	In the usual manner.
Mort.	Morturarium	A mortar.
Ne tr. s. num.	Ne trades sine nummo	Do not deliver without the money.
Necn.	Necnon	Also.
Nisi	Nisi	Unless.
Non	Non	Not.
Non repetat.	Non repetatur	Let it not be repeated.
Noc, Noct.	Noc, Noctis	The night, of the night.
Noct. maneq.	Nocte maneque	At night and in the morning.
Nucha	Nucha	The nape of the neck.
No.	Numero, Numerus	In number, A number.
Nux Mosch.	Nux Moschata	A nutmeg.
O., Oct.	Octarius	A pint (℥ xvj).
Octav.	Octavus	Eighth.
Octo	Octo	Eight.
Ol. Lini sine ig.	Oleum Lini sine igne	Cold-drawn Linseed Oil.
Ol. O. opt.	Oleum olivæ optimum	Best olive oil.
Omn. hor.	Omni horâ	Every hour.
Omn. bih.	Omni bihorio	Every two hours.
Omn. quadr. hor.	Omni quadrante horæ	Every ¼ hour.
Omni mane	Omni mane	Every morning.
Omn. noct.	Omni nocte	Every night.
Op.	Opus	Need, *or* occasion.
Ov.	Ovum	An egg.
P.	Pondere	By weight.
P. P. A.	Phiala prius agitata	The bottle having been first shaken.
Pan.	Pannus	A rag.
Par., Pt.	Pars, Partis	A part, Of a part.
Pt. æq.	Partes æquales	Equal parts.
Part. vic.	Partitis vicibus	In divided doses.
Parv.	Parvus	Little.
Parvul.	Parvulus	An infant, A parvule.
Pastil.	Pastillus, Pastillum	A pastille.
Pediluv.	Pediluvium	A foot-bath.
Penicil. cam.	Penicillum camelinum	A camel's-hair pencil or brush.
Per	Per	Through, By.
Peract. operat. emet.	Peractâ operatio emetici	When the emesis is finished.
Per deliq.	Per deliquium	By deliquescence.
Per fistul. vit.	Per fistulam vitream	Through a glass tube.
Perg.	Pergo, Pergere	To go on with.
Permit. vir.	Permittentibus viribus	The strength permitting.
Phil.	Phiala	A vial, *or* bottle.
Pil.	Pilula	A pill.

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* This is medical Latin, or "bog-Latin." The proper Latin for a minute of time is *Sexagesima pars horæ.*

Contraction.	Word or Phrase.	English Equivalent.
Pocill.	Pocillum	A little cup.
Pocul.	Poculum	A cup.
Pon., P.	Pondere	By weight
P. civ.	Pondus civile	Civil weight (avoirdupois).
P. med.	Pondus medicinale	Medicinal weight.
Pone aur.	Pone aurem	Behind the ear.
Post sing. sed. liq.	Post singulas sedes liquidas	After every loose stool.
Pot.	Potus	Drink.
Præp.	Præparata	Prepared.
Primo mane	Primo mane	Very early in the morning.
Primus	Primus	The first.
Pro	Pro	For.
Pro rat. æt.	Pro ratione ætatis	According to the age of the patient.
P. r. n.	Pro re nata	Occasionally. According to circumstances (or need).
Pug.	Pugillus	A pinch.
Pulm.	Pulmento	Gruel.
Pulv.	Pulvis	A powder.
Pulvz.	Pulverizatus	Powdered.
Pyx.	Pyxis	A pill-box.
Quad.	Quadrans,—antis	A quart.
Q. lib.	Quantum libet	As much as you please.
Q. p.	Quantum placet	" " " " "
Q. q.	Quoque	Also.
Q. v.	Quantum vis	As much as you please.
Q. vol.	Quantum volueris	" " " " "
Q. s.	Quantum sufficiat	As much as is sufficient.
Q. s.	Quantum satis	" " " " "
Qq.	Quaque	Each, *or* Every.
Qq. hor.	Quâquâ horâ	Every hour.
Quart.	Quartus	Fourth.
Quat., Quater	Quatuor, Quater	Four, Four times.
Quibus	Quibus	From which.
Quinq.	Quinque	Five.
Quint.	Quintus	The fifth.
Quoq.	Quoque	Also.
Quor.	Quorum	Of which.
Quotid.	Quotidie	Daily.
℞	Recipe	Take.
Ratio	Ratio	Proportion.
Rec.	Recens, -entis	Fresh.
Red. in pulv.	Redactus in pulverem	Let it be reduced to powder.
Redig. in pulv.	Redigatur in pulverem	" " " "
Reg. umbil.	Regio umbilici	The umbilical region.
Reliq.	Reliquus	Remaining.
Rept.	Repetatur, Repetantur	Let it (or them) be repeated.
Respond.	Respondere	To answer.
Retin.	Retinere	To keep.
Saltem	Saltem	At least.
Saltim	Saltim	By leaps.
Sat.	Saturatus, -a, -um	Saturated.
Scarif.	Scarificare	To scarify.
Scarif. expl.	Scarificatione explicata	Scarification having been effected.
Scat.	Scatula	A box.
Scil.	Scilicet	Namely.
Scrup, or ℈	Scrupulum	A scruple (20 grains).
S. A., Sec. art.	Secundum artem	According to art.
S. N., Sec., nat.	Secundum naturam	According to nature.
Secund.	Secundus	Second.

Contraction.	Word or Phrase.	English Equivalent.
Sed.	Sedes	The alvine evacuation.
Semel	Semel	Once.
Semidr.	Semi-drachma	Half a drachm.
Semih.	Semi-hora	Half an hour.
Sept.	Septem	Seven.
Septim.	Septimana	A week.
Sesqh.	Sesquihora	An hour and a half.
Sesunc.	Sesuncia	An ounce and a half.
Sex, Sext.	Sex, Sextus	Six, Sixth.
Si	Si	If.
Sig.	Signa	Write, *or* Mark (thou).
Sig. nom. prop.	Signatur nomine proprio	Let it be written upon with its proper name.
Simul	Simul	Together.
Sin.	Sine	Without.
Sing.	Singularum	Of each.
Si non val.	Si non valeat	If it does not answer.
Si op. sit.	Si opus sit	If necessary.
Si vir. perm.	Si vires permittant	If the strength will bear it.
Sit	Sit	Let it be.
Sol.	Solus	Alone.
Solv.	Solve, Solvere	Dissolve (thou), To dissolve.
Solut.	Solutus	Dissolved.
Som.	Somnus	Sleep.
Spt.	Spiritus, -ûs	Spirit.
Spt. vin. rect.	Spiritus vini rectificatus	Rectified spirit of wine (Alcohol).
Spt. vin. ten.	Spiritus vini tenuis	Proof spirit.
Spt. vinos.	Spiritus vinosus	Ardent spirit (of any strength).
Ss.	Semis, Semissis	A half.
St.	Stet, Stent	Let it (or them) stand.
Stat.	Statim	Immediately.
S. S. S.	Stratum superstratum	Layer upon layer.
Subact.	Subactus	Subdued.
Sub. fin coct.	Sub finem coctionis	When the boiling is nearly done.
Subind.	Subinde	Frequently.
Sum. tal.	Sumat talem	Let him take one like this.
Sum.	Sume	Take.
"	Sumat	Let him take.
"	Sumatur	Let it be taken.
"	Sumantur	Let them be taken.
"	Sumendus	To be taken.
Summit.	Summitates	The summits.
Sup. bib. haust.	Superbibendo haustum	Drinking afterwards this draught.
Supra	Supra	Above.
Syr.	Syrupus, -i	Syrup.
Tab.	Tabella	A lozenge.
Tal.	Talis	Such a one.
Temp.	Tempus, -oris	Time, *or* Temple.
Tempor. dext.	Tempori dextro	To the right temple.
Ter	Ter	Thrice, *or* Three times.
T. i. d., *vel* T. d.	Ter in die, *vel* Ter die	Thrice daily.
Tere	Tere	Rub.
Tere sim.	Tere simul	Rub together.
Tert.	Tertius	Third.
Tinct. *vel* Tr.	Tinctura	Tincture.
Tinct. Herb. Recent	Tincturæ Herbarum Recentium	Tinctures of Fresh Herbs.
Tres	Tres	Three.
Trid.	Triduum	Three days.

Contraction.	Word or Phrase.	English Equivalent.
Trit.	Tritura	Triturate.
Troch.	Trochiscus, Trochisci	A lozenge, *or* troche, Lozenges.
Tus.	Tussis	A cough.
Ult. præsc.	Ultimo (*vel* Ultima) præscriptus	The last ordered.
Una	Una	Together.
Unc., *or* ℥	Uncia	An ounce.
Ut dict.	Ut dictum	As directed.
Utend.	Utendum	To be used.
Uto, Uti	Uto, Uti	To make use of.
Vas vit.	Vas vitreum	A glass vessel.
Vehic.	Vehiculum	A vehicle, *or* menstruum.
Vel	Vel	Or.
Venæsec. brach.	Venæsectio brachii	Bleeding in the arm.
Vesp.	Vesper, -eris	The evening.
Vic.	Vices	Turns.
Vin.	Vinum	Wine.
Vir.	Vires	Strength.
Vitel.	Vitellus	Yolk.
Vitel. ovi Sol.	Vitello ovi Solutus	Dissolved in the yolk of an egg.
Vitel. ovi	Vitellus ovi	Yolk of egg.
Vitr.	Vitreum, Vitrum	Glass.
Vom. urg.	Vomitione urgente	Vomiting being severe.

For the Dangerous Abbreviations, see *ante*, page 444, under the title PRESCRIPTIONS.

PRONUNCIATION.

Attention is particularly directed to the accentuation of words commonly mispronounced; as, for example, acètas, átropa, chimáphila (*kima*), chlòridum, codèia, conium, énema, iódidum, radìcis, rícinus, sinàpis, syrùpus, éczema, umbilìcus, abdòmen, brómidum, páresis.

VERBS.

The Verbs used in prescription writing are nearly all in the imperative mood, giving directions to the compounder, and having their object in the accusative case. Such are—

Adde, add
Cola, strain.
Divide, divide.
Extende, spread.
Fac, make.
Filtra, filter.
Macera, macerate.
Misce, mix.
Recipe, take.
Signa, write.
Solve, dissolve.
Tere, rub.

A few verbs are found in the subjunctive mood, taking their subject or predicate in the nominative case. The most usual are—

Fiat, let be made.
Fiant, let be made.
Coletur, let be strained.
Coloretur, let be colored.
Sumatur, let be taken.
Bulliat, let boil.
Capiat, let take.
Detur, let be given.
Dividatur, let be divided.
Sit, let it be.

PARTICIPLES.

Participles or Verbal Adjectives are occasionally used, and should agree with their respective nouns in gender, number and case. Such are the following, viz.:—

Dividendus, -a, -um, to be divided.
Sumendus, -a, -um, to be taken.
Adhibendus, -a, -um, to be administered.

PREPOSITIONS.

Those in the first column require the noun following to be in the accusative case,—those in the second column require the ablative case.

Ad, to, up to.	*Cum*, with.
In, into.	*Pro*, for.
Supra, upon.	*Sine*, without.

Ana, of each,—governs the genitive case.

SUNDRY WORDS AND PHRASES, IN MOST FREQUENT USE.

Bene, well.
Bis, twice.
Dein, thereupon.
Et, and.
Gradatim, gradually.
Guttatim, by drops.
In dies, daily.
Da, give.
Non, not.
Numerus, number.
Octarius, a pint.
Semel, once.
Simul, together.
Statim, at once.
Ter, thrice.
Quater, four times.
Ad saturandum, to saturation.
Numero, to the number of.
Quantum sufficiat, as much as necessary.
Pro re natâ, according to need.
In partes-æquales, into equal parts.
Redactus in pulverem, let be pulverized.
Secundum artem, according to art.
Non Repetatur, let it not be repeated.

GENITIVE CASE-ENDINGS.

NOM.	GEN.	EXCEPTIONS.
a	æ	Cataplasma, Enema, Physostigma, Aspidosperma and Gargarysma, all have the genitive in *-atis*. Coca is unchanged, though the genitive Cocæ is written by some authorities. Folia is plural, gen. Foliorum.
us um os on	i	Rhus, Rhois; Flos, Floris; Bos, Bovis; Limon, Limonis; Erigeron, -ontis. Fructus, Cornus, Quercus, Spiritus, Haustus, Potus, do not change, being of 4th declension.
as	atis	Asclepias, -adis; Mas, Maris.
is	idis	Pulvis, -eris; Arsenis, -itis; Phosphis, -itis; Sulphis, -itis, and all salts ending in -is, have genitive in -itis.
o	onis	Mucilago, -inis; Ustilago, -inis; Solidago, -inis.
l	-lis	Fel, Fellis; Mell, Mellis; Sumbul, Sumbuli.
en ps rs r x	inis pis rtis ris cis	*Words which do not change in the Genitive.* * Amyl. Azedarach. Berberis. Buchu. Cannabis. Catechu. * Coca. Cundurango. Cornus. Curare. Digitalis. Fructus. Haustus. Hydrastis. Jaborandi. Kino. Matico. Potus. Quercus. Sassafras. Sago. Sinapis. Spiritus. * But some authorities give Amylis, Cocæ.

HYPODERMIC FORMULÆ.

Apomorphine.

℞. Apomorphinæ Hydrochlor., . gr. j.
Div. in pulv. xvj. One to four in ♏xx of water as required.

Aqua-puncture.

℞. Aquæ Destillatæ, ... ℥j.
Sig.—ʒss–ʒj hypodermically.

Arsenic.

℞. Liq. Potassii Arsenitis, . . . q. s.
Sig.—♏ij–x, hypodermically.

℞. Liq. Arsen. et Hydr. Iodidi, q. s.
Sig.—♏v–xx, hypodermically.

Amyl Nitrite.

℞. Amyli Nitrit., ... ʒj.
Sig.—♏iij–v at a dose, which may be repeated in ½ an hour if necessary.

Atropine.

℞. Atropinæ Sulphatis, ... gr. j.
Aquæ Destillatæ, ... ℥j.
Solve. Sig.—For hypodermic use, ♏vj = gr. $\frac{1}{80}$, ♏iv = gr. $\frac{1}{120}$.

Caffeine.

℞. Caffeinæ Citratis, ... gr. xxiv.
Aquæ Destillatæ, ... ℥j.
Solve. Sig.—♏xx contain gr. j.

Carbolic Acid.

℞. Ac. Carbol. Purif., ... gr. x.
Aquæ Destil., ... ℥j.
M. Sig.—♏viij contain gr. ⅙ of the acid, which may be given up to gr. ij or iij.

Chloral.

℞. Chloralis Hydratis, ... ʒiv.
Aquæ Destil., ... ℥j.
M. Sig.—♏xxx contain gr. xv of Chloral Hydrate.

Chloroform.

℞. Chloroformi Purif., ... ℥ss.
Sig.—♏v–xv can be used as one deep injection. (See *ante*, page 656.) The spirit is safer, in somewhat larger doses.

Coniine.

℞. Coniinæ Hydrobromat., . . gr. j.
Aquæ Destillat., ... ℥j.
M. Sig.—♏x contain gr. $\frac{1}{48}$.

Cocaine.

℞. Cocainæ Hydrochlorat., . . gr. v.
Aquæ Destillatæ, ... ʒij.
Solve. Sig.—♏xij contain gr. ss.

Curare.

℞. Curare (Merck), ... gr. j.
Acidi Acetici, ... ♏v.
Aquæ Destillatæ, . q. s. *ad* ♏c.
M. et filtra. Sig.—♏x contain gr. $\frac{1}{10}$.

℞. Curarinæ Sulphat., ... gr. j.
Aquæ Destillat., ... ℥ss.
M. Sig.—♏iv contain gr. $\frac{1}{60}$.

Daturine.

℞. Daturinæ, ... gr. ss.
Aquæ Destil., ... ℥j.
Solve. Sig.—♏iv contain gr. $\frac{1}{240}$. Dose, ♏iv–x.

Digitalin.

℞. Digitalini, ... gr. ss.
Alcoholis,
Aquæ Destil., ... āā ʒij.
Solve. Sig.—♏iv contain gr. $\frac{1}{120}$. Dose, ♏iv–viij.

Duboisine.

℞. Duboisinæ Sulphat., . . . gr. j.
Aquæ Destil., ... ℥j.
M. Sig.—♏iv contains gr. $\frac{1}{120}$.

Ergot and Ergotin.

℞. Extr. Ergotæ Fluid, ... ℥ss.
Filtra. Sig.—Dose, ♏x.

℞. Extracti Ergotæ (Squibb), . ʒj.
Aquæ Destillat., ... ℥j.
Solve et filtra. Sig.—♏x contain gr. j. Dose, ♏x–xx.

Hydrocyanic Acid.

℞. Acidi Hydrocyan. Dil., . . q. s.
Sig.—♏iv, a maximum dose.

Hyoscine, Hyoscyamine.

℞. Hyoscinæ Hydrobrom., *vel*
Hyoscyaminæ Hydrobrom., gr. j.
Aquæ Destillatæ, ... ℥j.
M. Sig.—♏x contain gr. $\frac{1}{96}$.

Mercury.

℞. Hydrarg. Chlor. Corr., . . gr. j.
Aquæ Destillat., ... ℥j.
M. Sig.—♏x contain gr. $\frac{1}{48}$.

℞. Hydrarg. Chlor. Corrosivi,
Ammonii Chloridi, . . . āā gr. iij.
Misce et solve in—
Aquæ Destillatæ, ... ʒjss.
Dein adde—
Albuminis Ovi, ... ʒjss.
Aquæ Destillatæ, ... ʒv.
Filtra, et adde—
Aquæ Destil., . . . q. s. *ad* ʒx.
Sig.—♏j contains gr. $\frac{1}{200}$. Dose, ♏iij–x.

℞. Hydrarg. et Sodii Iodidi, . gr. iij.
Aquæ Destillatæ, ... ʒiijss.
Solve. Sig.—♏x contain gr. ¼. Dose, ♏x every second day.

Morphine.

℞. Morphinæ Sulphatis, . . . gr. xvj.
Acidi Carbolici, ... ♏iij.
Aquæ Destillat., ... ℥j.
Solve et filtra. Sig.—♏vijss contain gr. ¼. (*Antiseptic Magendie's.*)

Morphine and Atropine.

℞. Morphinæ Sulphatis, . . . gr. xvj.
Atropinæ Sulphatis, . . . gr. ss.
Acidi Carbolici, ... ♏iij.
Aquæ Destillat., ... ℥j.
Solve et filtra. Sig.—♏vijss contain gr. ¼ of Morphine Sulph., and gr. $\frac{1}{120}$ of Atropine Sulphate.

℞. Morphinæ Sulphatis, . . . gr. xxiv.
Atropinæ Sulphatis, ... gr. j.
Ol. Amygdalæ Amar., . . gtt. j.
Aquæ Destillat., ... ℥ij.
Solve. Sig.—♏x contain gr. ¼ of Morphine Sulphate, and gr. $\frac{1}{96}$ of Atropine Sulphate. (*Didama's Solution.*)

Physostigmine (Eserine).

℞. Physostigminæ Sulph., . . gr. j.
Aquæ Destillatæ, ... ℥j.
Solve. Sig.—♏viij contain gr. $\frac{1}{60}$.

Pilocarpine.

℞. Pilocarpinæ Hydrochlor., . gr. xvj.
Aquæ Destillat., ... ℥j.
M. Sig.—♏v contain gr. ⅙.

Potassium Iodide.

℞. Potassii Iodidi, ... ʒj.
Aquæ Fontanæ, ... ʒiv.
Solve. Sig.—Dose, ♏vj–xx.

Quinine.

℞. Quininæ Disulph., ... gr. l (50).
Ac. Sulphurici Dil., . . . ♏c (100).
Ac. Carbolici, ... ♏v (5).
Aquæ Fontanæ, ... ℥j.
Solve. Sig.—ʒj contains gr. vj. (*Lente.*)
Is irritant. (B.)

℞. Quininæ Hydrobrom., . . . gr. xlviij.
Aquæ Destillat., ... ʒiv.
Solve. Sig.—♏xx contain gr. iv.

℞. Quininæ Bimur. Carbamidat.,
Aquæ Destillatæ, . . . āā ʒiv.
Solve. Sig.—♏x contain gr. v.

Strychnine.

℞. Strychninæ Sulphat., . . . gr. j.
Aquæ Destillatæ, ... ℥j.
Solve sine alcohol. Sig.—♏x contain gr. $\frac{1}{48}$.

℞. Strychninæ Nitratis, . . . gr. iij.
Aquæ Fervid., ... ʒx.
Solve. Sig.—♏x contain gr. $\frac{1}{20}$.
(*Portugaloff.*)

Solutions for hypodermic use should be neutral in reaction, neither acid nor alkaline; and freshly prepared, especially solutions of the alkaloids, which soon develop a penicillium, which grows at the expense of the alkaloid. Aqua Fontana, if filtered, is a better menstruum than Aqua Destillata which has been kept for a week, and frequently exposed to the atmosphere. To run the least risk of producing a sore at the point of injection, use very fine needles, and deliver the injection into the areolar tissue beneath the skin, instead of into the skin, as lay parties generally do for themselves. The writer has given injections of Morphine and Atropine to a dying girl 3 or 4 times daily for two months, and never produced a sore. Always force out all liquid, and wipe the needle-point dry between the fingers, before returning it to the case; the sebaceous matter on the fingers will keep it free from rust. There is an area of several inches square, on the upper and exterior aspect of the thigh, just below the great trochanter of the femur, which is remarkably insensible, being sparingly supplied with cutaneous nerves. (See Fig. 307, Gray's *Anatomy*, 10th English edition.) An injection delivered in this area will not be felt by the patient. Avoid puncturing a vein; if you do so, watch the patient and prepare an injection containing gr. $\frac{1}{96}$ of Atropine Sulphate, to administer if dangerous symptoms arise. Never, except under special circumstances, administer the salts of Morphine or Atropine hypodermically to children less than 15 years of age.

Acetanilid, in minute proportion, added to aqueous solutions for hypodermic use, is said to preserve them from decomposition more efficiently than any other agent hitherto employed for that purpose.

CHLORODYNE.

A Comparison of its Ingredients, according to Ten Formulæ therefor, the Quantities Being Calculated for Each Formula to a Four-Ounce Mixture, or ♏ 1920.

Articles.		Quantity of each article in a ℥iv mixture, as per the formula of									
		Squire, P.*	Smith, Edw.†	Chandler.‡	U. S. Disp.	Nat'l Disp.	P. D. & Co.**	Whitla.¶	Bartholow.	Brit. Phar.††	Collis Browne.§
Morphine Hydrochlorate,	gr.	1	16	16	32	33½	14	16	1 1/20	4	24
Chloroform, ...	♏	236	192	240	372	375	207	240	247	240	240
Ether, ...	♏	59	96	. .	. .	. .	. .	120	62	60	. .
Cannabis Indica, Tincture,	♏	. .	. .	. .	248	250	207	20	. .	. .	. .
Cannabis Indica, Extract,	gr.	. .	. .	32	. .	. .	. .	. .	. .	. .	24
Hydrocyanic Acid, 2 p. c.,	♏	118	192	. .	50	50	42	90	123	120	48
Ol. Menthæ Piperitæ, . .	♏	2	6	16	10	8	7	7	2	2	. .
Capsicum, Fluid Extract, .	♏	. .	. .	4	. .	. .	. .	. .	. .	. .	. .
Capsicum, Tincture, . .	♏	. .	290	. .	. .	37	7	120	. .	. .	. .
Capsicum, Oleo-resin, . .	♏	. .	. .	. .	4	. .	. .	. .	. .	. .	. .
Alcohol, ...	♏	236	. .	810	994	1010	690	. .	247	240	. .
Hydrochloric Acid, . . .	♏	. .	. .	. .	126	62	. .	30	. .	. .	. .
Sugar, Burnt, ...	gr.	. .	. .	. .	. .	. .	. .	20	. .	. .	. .
Glycyrrhizæ, Extract, . .	gr.	147	. .	. .	. .	. .	. .	. .	154	240	. .
Acacia, Mixture, ...	♏	. .	384	. .	. .	. .	. .	. .	. .	. .	. .
Tragacanth, Mucilage, . .	♏	. .	. .	. .	. .	. .	. .	903	. .	. .	. .
Theriaca, *or* Syr. Fusci, .	♏	236	760	. .	. .	. .	. .	150	247	240	1632
Syrup, ...	♏	. .	760	. .	. .	. .	. .	. .	992	q. s.	. .
Glycerin, ...	♏	1033	. .	818	. .	. .	760	. .	. .	. .	. .
Water, ...	♏	. .	. .	. .	126	128	. .	240	. .	. .	. .
Total No. of Minims, . .	. .	1920	1920	1920	1920	1920	1920	1920	1920	1920	1920
Adult Dose, ...	♏	5-10	5-30	. .	3-10	5-15	5-30	5-30	5-15	5-10	10-30
Morphine Hydroch. in ♏xv, ...	gr.	1/128	⅛	⅛	¼	¼	1/10	⅛	1/128	1/32	⅕

NOTE.—See ante, page 185, for remarks on this preparation, and the number of formulæ representing it.

* Author of "A Companion to the Br. Pharmacopœia."

† See Hartshorne's "Essentials," 5th ed., p. 625.

‡ Made by Eli Lilly & Co., Indianapolis.

¶ 2d ed., page 430.

** Parke, Davis & Co., Detroit.

†† Tinct. Chloroformi et Morphinæ, B. P.

§ As given by Stokes and Blyth in "Hygiene."

PATENT MEDICINES.

These formulæ have been published from time to time in various journals and formularies, and are supposed to represent the preparations designated. The name of the author is appended in each case when known.

Alcoholic Strength of Quack Bitters.

Hostetter,	43.20
Drake Plantation,	30.24
Rush,	34.20
Peruvian,	22.40
Hoofland,	20.85
Oxygenated,	19.23
California Wine Bitters,	18.20
Walker's Vinegar Bitters,	7.20

Amick's Consumption Cure.

The Amick advertisements appeared shortly after the publication of Dr. N. B. Shade's paper in this and other journals. Amick copied Shade's language, speaking of the "chemical" cure, etc., and, I believe, adopted Shade's methods of treatment. These were fully described by Shade, and consist in the use of Calomel, Iodoform, Guaiacol, etc.

(*Dr. Waugh, in Times and Register.*)

Ayer's Ague Cure.

This, according to Churchill's analysis, is alleged to consist of a syrupy tincture of Peruvian Bark with Aromatics, each bottle holding six fluid ounces, and each fluid ounce containing 3.2 grains of amorphous Cinchona alkaloids, 3 grains Cinchonine, 0.7 grain Cinchonidine, 0.8 grain Quinine, and 1 grain of Quinidine.

Ayer's Cherry Pectoral.

Morphinæ Acetat.,	gr. iij.
Vini Antim. et Potass. Tartrat.,	
Vini Ipecacuanhæ,	aa ʒ iij.
Tinct. Sanguinariæ,	℥ ij.
Syr. Pruni Virginian.,	℥ iij.

Ayer's Pills.

Consist of Colocynth, Gamboge and Aloes, coated with Starch and Sugar.

Ayer's Sarsaparilla.

Alcohol,	fl. oz. 3.
Fluid Extr. of Sarsaparilla,	fl. oz. 3.
Fluid Extr. of Stillingia,	fl. oz. 3.
Fluid Extr. of Yellow Dock,	fl. oz. 2.
Fluid Extr. of Podophyllum,	fl. oz. 2.
Sugar,	oz. 1.
Iodide of Potassium,	grs. 90.
Iodide of Iron,	grs. 10.

Mix.

Brandreth's Pills.

Podophylli Radicis,	gr. x.
Extracti Podophylli,	gr. x.
Extr. Phytolaccæ Baccæ,	gr. xxx.
Pulv. Caryophylli,	gr. x.
Cambogiæ,	gr. ij–v.
Ol. Menthæ Piperitæ,	♏ iij.
Croci,	gr. ij.

Misce, fiat masse, et div. in pil. xxiv.

(*Hager.*)

Castoria.

Senna,	av. oz. 2.
Pumpkin seed,	dr. 6.
Rochelle salts,	dr. 4.
Wormseed, Levant,	dr. 3.
Sodium Bicarbonate,	dr. 2.
Anise Seed,	dr. 1.
Oil of Gaultheria,	dr. ½.
Oil of Peppermint,	dr. ⅙.
Sugar,	av. oz. 8.
Water, enough to make	fl. oz. 16.

Exhaust the vegetable drugs by boiling with water, evaporate to the proper volume, and dissolve the sugar and other ingredients.

(*Western Druggist.*)

Chlorodyne, Collis Browne's.

Morphinæ Hydrochlor.,	gr. 6.
Chloroform,	dr. 6.
Cannabis Indica,	gr. 6.
Prussic Acid (Scheele's),	♏ 6.
Treacle, to make	oz. 1.

Dose.—10 to 30 minims. (*Hygiene.*)

Clarke's Blood Mixture.

Potassium Iodide,	gr. 48.
Chloric Ether,	dr. 4.
Liquor Potassæ,	♏ 30.
Water, colored with Burnt Sugar,	oz. 7½.

Dose.—One tablespoonful four times a day. (*Hygiene.*)

Ely's Cream Balm.

consists of Vaseline, 1 ounce; Thymol, 3 grains; Carb. Bismuth, 15 grains; Oil Wintergreen, 2 minims. The directions are to dip the little finger into the balm and insert up the nostrils, giving two or three full inhalations. (*Medical Record.*)

Garfield Tea.

consists chiefly of Senna leaves and Couch-grass (Triticum), with aromatics. (*Prof. Lengfield.*)

Hamburg Tea.

Sennæ Foliorum,	pt. viij.
Mannæ,	pt. iv.
Coriandri,	pt. j.

Hamlin's Wizard Oil.

Spt. Camphoræ,	℥j.
Spt. Ammoniæ,	
Olei Sassafras,	āā ℥ss.
Olei Caryophylli,	ʒij.
Chloroformi,	
Olei Terebinthinæ,	āā ʒss.
Alcoholis,	q. s. *ad* ℥v.

Helmbold's Buchu.

Said to resemble the genuine.

Short Buchu,	oz. 9.
Uva Ursi,	oz. 4½.
Licorice root,	dr. 10.

Macerate in 9 pints of boiling water, strain and add—

Caramel,	oz. 2.
Molasses,	oz. 8.

Mix well and add—

Cubeb (fluid extract),	oz. 5.
Alcohol,	pints 2.
Peppermint Oil,	oz. 1.
Water, sufficient to make	pints 12.

(*Lillard's Prac. Hints and Formulæ.*)

Holloway's Ointment.

Has in 159 parts—

Olive Oil,	62½ parts.
Lard,	50 "
Resin,	25 "
White Wax,	12½ "
Yellow Wax,	3 "
Turpentine,	3 "
Spermaceti,	3 "

Holloway's Pills.

Have in 144 Pills—

Aloes,	gr. 62.
Rhubarb,	gr. 27.
Saffron,	gr. 3.
Glauber's Salt,	gr. 3.
Pepper,	gr. 7.

(*Dorvalt.*)

Hostetter's Bitters.

Sacchari Albi,	
Aurantii Corticis,	
Calami,	
Cinchonæ,	
Gentianæ,	āā ℔j.
Rhei Pulv.,	℥iv.
Cinnamomi,	℥ij.
Caryophylli,	ʒj.
Alcoholis Diluti,	Cij.

(*Med. Bulletin*, 1884.)

Keeley's Chloride of Gold Cure.

For drunkenness and the opium-habit. The composition is said to be as follows:—

Chloride of Ammonium,	gr. j.
Aloin,	gr. ij.
Compound Tincture of Cinchona,	fl. ℥ iij.
Water, sufficient to make	fl. ℥ iv.

The hypodermic injection, administered 4 times daily for 5 weeks, contains Strychnine and Atropine (or Hyoscine) with Codeine and Cocaine for the opium cases. The whiskey supplied to the victims contains about gr. $\frac{1}{50}$ of Apomorphine to each average drink. (*N. Y. Med. Record.*)

Laville's Gout Mixture.

Calcium Chloride, Chinoidin, each	grm. 5.
Extract Colocynth,	grm. 2.5
Water,	grm. 85.
Alcohol,	grm. 100.
Spanish Wine,	grm. 800.

Made into a solution. A pill of very complicated composition is used in connection with the gout remedy. (*Hager.*)

[See also page 206, *ante.*]

Morrison's Pills.

Powdered Colocynth, . . .	gr. 3.
Powdered Gamboge, . . .	gr. 6.
Powdered Aloes, ...	gr. 9.
Cream of Tartar, ...	gr. 12.

Syrup enough for 12 pills. Serious results are often produced by large doses of these pills.

Orange Blossom.

Zinc Sulphate, ...	gr. 60.
Alum, ...	gr. 15.
Expr. Oil of Almond, . .	gr. 90.
Extract of Hyoscyamus, .	gr. 1.
White Wax, ...	gr. 30.
Oil of Theobroma, ...	gr. 180.

Made into oblong suppositories, one inch long, one and a half wide and half an inch thick, weighing 32 grains each.

Perry Davis's Pain Killer.

Tinct. Capsici, ...	℥j.
Spt. Camphoræ, ...	℥ij.
Guaiaci Resinæ, ...	℥ss.
Alcoholis, ...	℥iij.
Tinct. Myrrhæ, q. s. to color.	

Pierce's Favorite Prescription.

Sabinæ, Cinchonæ,	
Agarici Albi, ... aa	ʒ ij.
Cinnamomi, ...	gr. xv.
Coq. in aq. suff., ut ft. decoct.	℥ viij.

Deinde cola, et adde—

Sacchari Albi, ...	℥ss.
Acaciæ, ...	ʒj.

Solve, et addantur—

Tinct. Opii Deodorat.,	
Tinct. Digitalis, ... aa	ʒ ss.
Ol. Anisi, gtt viij, in Alcoholis, ...	℥jss.

Misce. (*Hager.*)

Pierce's Golden Discovery.

Ext. Lactuci, ...	ʒj.
Mellis, ...	℥j.
Tinct. Opii Deodorat, . . .	ʒ ss.
Alcoholis Diluti,	
Aquæ, ... aa	℥iij.

(*Hager.*)

Radam's "Microbe-Killer."

Oil of Vitriol (impure), . .	dr. 4.
Muriatic Acid (impure), . .	dr. 1.
Red Wine, ...	oz. 1.
Water, ...	gall. 1.

(*Eckels.*)

Radway's Ready Relief.

Tinct. Capsici,	
Aquæ Ammoniæ,	
Alcoholis, ... aa	℥j.
Linimenti Saponis, ...	℥iij.

(*Hager.*)

Radway's Resolvent.

Vini Zingiberis,	
Vini Cardamomi, . . . aa	℥iij.
Sacchari Albi, ...	q. s.

(*Hager.*)

Recamier Balm.

Zinc Oxide, ...	lbs. 5.
Glycerin, ...	dr. 2.
Alcohol, ...	oz. 2.
Mercuric Chloride, ...	oz. 4.
Distilled Water, ...	qts. 64.

(*Boston Herald.*)

Recamier Cream.

Rice Flour, ...	oz. 48.
Zinc Oxide, ...	oz. 60.
Glycerin, ...	oz. 640.
Cacao Butter, ...	oz. 48.
Lard, ...	oz. 48.
Mercuric Chloride, ...	oz. 4.

Make 32 pints. (*Boston Herald.*)

Revalenta Arabica Food.

Consists solely of Lentils ground up into a fine powder. (*Stokes in "Hygiene."*)

Sage's Catarrh Remedy.

Salis Culinaris (Sodii Chlor.),	partes xx.
Pulv. Camphoræ, ...	part. j.
Acidi Carbolici, ...	part. j.

M.—To be dissolved in water and either injected or sniffed up the nose.

Pulv. Hydrastis Canadensis,	partes v.
Pulv. Indigo, ...	part. ½.
Pulv. Camphoræ,	
Acidi Carbolici, ... aa	partes ij.
Sodii Chloridi, ...	partes l.

(*New Remedies.*)

Sanford's Catarrh Cure.

According to an analysis made by Prof. A. B. Lyons for the *New Idea*, this preparation is composed of distilled extract of Witch-hazel, containing a little Alcohol and Glycerin and some Morphine. The proportions of the constituents were not determined. (*Nat. Druggist.*)

Seigel's (Mother) Syrup.

Contains Aloes, gr. 30 to the oz. Also Borax, Capsicum, Liquorice, and Treacle. (*Stokes in "Hygiene."*)

Sequah's Oil.

A mixture of ⅔ Turpentine and ⅓ Fish Oil, scented with a few drops of Oil of Camphor. (*Stokes in "Hygiene."*)

Sequah's Prairie Flower.

Has to the ounce—

Aloes,	gr. 52½.
Carbonate of Soda,	gr. 17½.
Water,	gr. 362½.

and a few drops of the Tinctures of Capsicum and Myrrh. (*Stokes in "Hygiene."*)

St. Jacob's Oil.

Gum Camphor,	
Chloral Hydrate,	
Chloroform,	
Sulphuric Ether,	of each, oz. 1.
Tinct. of Opium,	
Oil of Origanum,	
Oil of Sassafras,	of each, oz. ½.
Alcohol,	gal. ½.

Dissolve the Gum Camphor in the Oils and Alcohol, then add the other ingredients.

Squibb says that it is a weak Aconite Liniment, also containing Ether, Alcohol, Turpentines, red coloring matter, and water. (*Ephemeris*, p. 114.)

Swift's Specific, "S. S. S."

Fluid Extr. of Smilax Sarsaparilla,	16 parts.
Fluid Extr. of Stillingia Sylvatica,	16 parts.
Fluid Extr. of Lappa Minor,	16 parts.
Fluid Extr. of Phytolacca,	16 parts.
Tinct. of Xanthoxylum,	8 parts.

(*Registered Pharmacist.*)

Stearns' *New Idea* gives the following: Stillingia, Pokeroot, and Sarsaparilla, with Nitrate of Potash and a small quantity of Iron, and enough Alcohol to preserve it.

Tamar Indien.

According to the *Report de Pharmacie*, the formula for this preparation is as follows:—

Tamarind (pulp), 450, powd. Sugar, 40; powd. Sugar-of-milk, 60; pure Glycerin, 50 (all parts). Mix and evaporate to the consistence of a soft extract, then add powd. Anise, 10; Ess. Lemon, 3; Tartaric Acid, 3 (all parts). Mix and divide into 100 boluses. Roll in the following mixture: Cream of Tartar, 5; White Sugar, 35; Sugar-of-milk, 35; Tragacanth, 2; Tartaric Acid, 2; powd. Red Sandal, 25 (all parts). Dry and put up in tin foil. (*American Druggist.*)

Thompson's Eye-Water.

Sulphate of Copper,	gr. 10.
Sulphate of Zinc,	gr. 40.
Rose-water,	pints 2.
Tincture of Saffron,	drchm. 4.
Tincture of Camphor,	drchm. 4.

Mix and filter.

Van Buskirk's Sozodont.

Saponis Albi,	℥ss.
Alcoholis,	℥j.
Aquæ,	ʒvj.
Glycerini,	ʒij.
Olei Gaultheriæ,	
Olei Caryophylli,	
Olei Menthæ Piperitæ,	āā q. s. *ad* saporem grat.
Cocci Cacti, q. s. ad coloret.	

Calcis Præcipitat.,	
Magnesia Carbonatis,	
Iridis Florent. Radicis,	āā p. æq.

M. et trit. (*Hoffmann.*)

Vita Nuova.

Cocaine,	gr. 8.
Pepsin (golden scale),	gr. 48.
Port Wine,	gall. 1.

(*Boston Herald.*)

Walker's Vegetable Vinegar Bitters.

Aloes Socotrin.,	ʒij.
Guaiaci Resinæ,	℥iv.
Sassafras Mucil.,	℥j.
Aceti,	ʒij.
Aquæ,	q. s.

Coque, et ft. decoctum, ad ℥xix, deinde cola, et addantur—

Sodii Sulphatis,	℥j.
Acaciæ,	ʒij.
Spt. Anisi, 10 p. c.,	℥ij.
Alcoholis,	℥j.

M. Dose, ʒij. (*Eberbach.*)

Warner's Safe Kidney and Liver Cure.

In Germany each maker of patent medicines must furnish the government with the formula for the patent he makes. This is the one furnished by Warner for "Safe Kidney and Liver Cure." Each bottle contains:—

Extr. Lycopus Virginiana (herb),	gr. 308.
Extr. Hepatica (herb),	gr. 322.
Ext. Gaultheria,	gr. 7½.
Potassium Nitrate,	gr. 39.
Alcohol (90°),	oz. 2½.
Glycerin,	dr. 10.

Water sufficient to make one pint.

(*Formulary and Druggists' Magazine.*)

TABLES OF DIFFERENTIAL DIAGNOSIS.

Forms of Bright's Disease.

Compared with Acute Nephritis and with each other.

CLINICAL PHENOMENA.		Acute Nephritis.	(1) Acute Bright's Disease. Acute Parenchy. Nephritis.	Chronic Bright's Disease.			
				(2) Chron. Parenchy. Nephritis. (*Large White Kidney*).	(3) Fatty Kidney.	(4) Amyloid or Waxy. Kidney.	(5) Chron. Interstitial Nephritis. (*Cirrhotic Kidney.*)
URINE.	*Quantity,*	Normal or —	—	— or +	Normal or —	Normal or +	Normal or +
	Reaction, ...	Acid.	Acid.	Acid.	Acid.	Acid.	Acid.
	Color, ...	Wine yellow.	Dark smoky.	Brown yellow.	Pale.	Pale.	Clear.
	Sp. Gr., ...	Normal or —	High.	—	1,015–1,030	—, above 1.010	— 1.010
	Urea, ...	Normal.	—	—	—	Normal or —	Normal.
	Chlorides, ...	Normal.	—	—	—	—	Normal.
	Albumen (*per cent.*), . . .	$\frac{1}{10}$ to $\frac{1}{8}$	1 to 6	$\frac{1}{2}$ to 2	1 to 6	$\frac{3}{10}$ to $\frac{1}{2}$ of globulin.	$\frac{1}{10}$ to $\frac{1}{2}$
	Casts, ...	Hyaline and Epithel.	Blood Epithel. Hyaline.	Granular Hyaline. No blood.	Fatty.	Few and Hyaline.	Very few.
	Sediment (*macroscopical*),	Mucus. Blood.	Brown cells. Urates.	Kidney epithel'm Blood Lymph.	Free oil.	Seldom any.	Seldom any.
DROPSY, ...		Seldom.	Great, especially of face.	Never absent.	Great.	Trifling.	In last stages.
URÆMIA, ...		. . .	Often great.	Not marked.	Rare.	Rare.	Great.
OTHER SYMPTOMS, ...		Stiff joints. Sacral pain. Lassitude.	Fever.	Temperature low. No fever. Inflam. of serous membr's. Cardiac hyper.	Face pale, puffy. Cardiac hyper.	Emaciation, sallow face, enlarged liver and spleen, thirst, diarrhœa.	Retinitis. Tense, quick pulse. Hyper. of heart.
PROGNOSIS, ...		Favorable	Recovery or No. 2.	Recovery (?)or No. 3.	Always fatal.	Depends on constitutional disease present.	Unfavorable, but course perhaps long.

NOTE.—The signs + and — respectively denote a specific gravity greater than 1.024, or less than 1.018, in the line entitled *Sp. Gr.*

Cancer.

Cancerous (Malignant) Tumors.	*Non-malignant Tumors.*
Are of constitutional origin.	Origin, some local error of growth.
Have no cyst, but invade and convert the surrounding tissues.	Limited by a cyst; may compress, but do not invade adjacent tissues.
Cancer material is short-lived from rapid deterioration, but is rapidly reproduced.	Have uncertain period of increase, after which may remain stationary.
Severe increasing pain.	Usually no pain.
Extend to remote parts, reappearing chiefly in lymphatic glands.	Are local, have no disposition to spread.
Cancerous cachexia of general health.	Impair functions of parts pressed on.
Recur after extirpation, fatal in end.	Do not recur.

Scirrhus.	*Encephaloma.*
Is hard.	Is soft and brain-like.
Appears mostly on female breast.	Most frequently on the limbs.
Hard kernel, movable under skin.	At first deeply seated, hard to recognize.
Becomes fixed to adjoining structures, which it puckers.	Spreads through loose textures, which it pushes aside and distends.
Single and grows slowly.	Has numerous tumors, grows rapidly.
Course slow—2–4 years.	Generally fatal in 1–2 years.
Never in the young.	Often in the young, even at birth.

Carditis.

Endocarditis.	*Pericarditis.*
Blowing sound. Excited heart action.	Friction sound. Excited heart action.
Slight if any increase of percussion dulness.	Marked increase in effusion stage.
Impulse strong.	Wavy and feeble.
Sounds normal, or more distinct, except at site where murmur is heard.	Feeble and muffled; no blowing sounds.

Cerebral.

Concussion.	*Compression.*
Patient can be roused; pupils act.	Complete insensibility; motionless pupils.
Breathing seldom stertorous.	Breathing usually stertorous.
Urinary action normal.	May be either retention or incontinence.
Symptoms appear closely after accident.	Frequently do not.

Chancre and Chancroid.

Chancre.	*Chancroid.*
Commences about 3d week after coitus.	In 24 hours to 3 days.
First as a papule, abrasion, or crack.	First as a red spot, then a pustule, then a suppurating sore.
Generally indurated (rarely not).	Not on an indurated base.
Develops slowly.	Develops rapidly.
Discharge slight, unless irritated.	Suppurates profusely.
Is soon limited and seldom phagedenic.	Tends to invade surrounding tissues, or become phagedenic.
Edges sloping, not undermined.	Edges undermined.
Scanty serous secretion.	Discharge is pus and copious.
Sore remains solitary, and cannot be multiplied.	May be transplanted at will, and is seldom single.
Followed by numerous buboes, rarely suppurating, never furnish inoculable pus.	A single bubo may appear and suppurate.

Cholera.

Asiatic.	*Simple.*
Preceded by painless diarrhœa.	Seizure sudden.
Not directly from error in diet.	Generally is from error in diet.
First pain shooting down thighs.	First pain is abdominal (colic).
Prostration rapid and overwhelming, and out of ratio to evacuations.	Prostration gradual, less marked than the vomiting and purging.
Rapid reduction of surface temperature; high temperature in cavities.	Gradual reduction of surface temperature; internal temperature normal.
Evacuations like rice-water from first.	Discharges bilious, causing burning and smarting pain; colorless only at very last.
Cramps commence in extremities.	Cramps commence in abdomen.
Veins congested; tongue, lips, and extremities livid purple.	Not so.
Urine albuminous.	Not so.

Croup and Diphtheria.

Croup.	*Diphtheria.*
Premonitory hoarse, metallic cough, without illness.	Premonitory illness, marked by shivers, fever, and sore throat, without cough.
A child's disease.	Attacks adults as well.
Tenacious mucus covering the swollen membrane.	Distinguished by a false membrane.
A local disease.	A blood poison; great general depression.

Epilepsy and Hysteria.

Epilepsy.	*Hysteria.*
Loss of consciousness is sudden, complete.	Gradual and partial or apparent.
Livid face, frothy saliva escapes, eyelids half open, eyeballs rolling, teeth grinding, tongue biting; more or less insensibility of pupils to light.	Face flushed, or complexion unaltered, no froth on lips, eyelids closed, eyeballs fixed, no grinding of teeth, or biting of tongue; pupils react readily.
Countenance is distorted.	Is not.
Patient shows no feeling.	Sighs, or laughs, or sobs.
Aura epileptica.	Globus hystericus.
Short paroxysm, followed by heavy comatose sleep and dull intellect.	Longer paroxysm; patient not sleepy, usually wakeful and depressed in spirits.
Frequently occurs at night.	Rarely occurs at night.
Not necessarily of uterine connection, though a paroxysm often occurs at the menstrual period.	Often connected with uterine or menstrual disorders.

Exanthemata.

Scarlet Fever.	*Measles.*	*Smallpox.*
Incubation, 1 day to weeks.	Incubation, 7 to 14 days.	Incubation, 6 to 20 days, average, 10.
Fever, great heat of skin, and frequent pulse, unabated during eruption.	Same fever rather increased by eruption.	Fever often violent, bounding pulse, pain in loins; all are greatly relieved by eruption.
Brilliant stare.	Liquid, watery eye.	

Scarlet Fever.	*Measles.*	*Smallpox.*
Eruption on second day, not rough, first on neck and chest, spreads rapidly, white streak on pressure with nail.	Eruption on fourth day, on face, rough, spreads gradually, the streak lasts only a short time.	Eruption usually on third day, at first on lips and forehead, spreads rapidly.
Eruption uniform, or in large patches, interspersed raised spots and some vesicles; rash scarlet, on its seventh day very complete desquamation in large patches.	Eruption in crescentic patches, lasts about 5 days, then partial desquamation, scales very fine.	Eruption is first papular, then vesicular, finally pustular; pustules maturate on 8th day of eruption.
Sore throat, rarely coryza or bronchitis.	Coryza and bronchitis very constant, sore throat rarely.	Sore throat often, also a dry cough.
" Raspberry " tongue, red.	Tongue coated, may be red at edges.	Tongue coated, and swollen, may be red at edges.
Cerebral symptoms are frequent and grave.	Not so.	Cerebral symptoms are frequently seen.
Temperature may be 105°–106° to 10th day, subsides gradually, falls on 5th, 10th, and 15th days.	103°–106° before eruption, remains high for 1–2 days thereafter, then falls suddenly.	Before eruption often 106°, then rapidly sinks to 100° in 36 hours; rises during the secondary fever.
No secondary fever.	No secondary fever.	Secondary fever always.
Pneumonia rare, pleurisy more frequent.	Pneumonia a frequent complication.	Pneumonia not a very frequent complication.
Sequelæ: Bright's disease, dropsy, deafness, conjunctivitis, phthisis, chronic diarrhœa; glandular enlargements.	Sequelæ: chronic bronchitis, phthisis, conjunctivitis.	Sequelæ: chronic diarrhœa, glandular enlargements, various eye diseases.

Gout and Rheumatism.

Gout.	*Rheumatism.*
Affects chiefly the small joints, especially the metatarsal joint of the great toe.	Large joints chiefly implicated.
Occurs from 35–50 years of age; rarely before puberty.	Occurs generally in young adults.
Most frequent in men, and result of idle, intemperate and luxurious life.	Affects both sexes equally, and equally the poor and the rich.
Is strongly hereditary.	But slightly so.
Chalk-stones (sodium urate) in external ear, on tops of fingers, or elsewhere.	Not so.
Uric Acid in the blood, absent from urine.	Lactic Acid in the blood.
A fit often affords temporary relief.	Quite the contrary.
Is confined to the temperate zone.	Is ubiquitous—prevails in all climates.

Hematemesis and Hemoptysis.

Hematemesis.	*Hemoptysis.*
Blood is of a dark color, and is vomited.	Blood is bright red, and generally coughed up.
Often mixed with food, not froth.	Generally frothy and mixed with sputa.
Preceded by nausea and stomachal distress, and blood is passed with the stools.	Preceded by pain in the chest and dyspnœa. No blood in the stools.

Pleurisy and Pneumonia.

Pleurisy.	*Pneumonia.*
Sharp pain, friction sound, dry cough, impaired chest motion.	Dull pain, crepitant râle, cough followed by expectoration.
In stage of effusion, obliteration of intercostal spaces, enlargement of the side, viscera displaced.	In stage of hepatization none of these signs are present.
Dullness, with enfeebled or absent respiration, voice, and fremitus.	Dullness, with marked bronchial respiration, distinct thoracic voice, increased vocal fremitus.
Sputa frothy, rarely any râles.	Sputa rusty color, râles common.
Febrile symptoms slight usually.	Febrile symptoms severe.
Temperature irregular, rarely high.	Sudden elevations and falls, high temperature not uncommon.

Phthisis.

Tubercular.	*Non-Tubercular.*
First symptom, a dry, short cough.	First stage follows catarrh, bronchitis, or some other acute disease.
No exciting cause apparent.	Is referable to some exciting cause, as cold, inflammation, or inhaling heavy dust.
Hereditary cases are of this class.	Not hereditary.
Frequently preceded by enlarged or suppurating glands, or other evidence of the scrofulous diathesis.	No evidence of scrofula.
Voice changes, from tubercular deposit.	No change of voice.

Typhus and Typhoid.

Typhus Fever.	*Typhoid (Enteric) Fever.*
Attacks quickly, incubation 9 days.	Commences slowly, incubation about 15 days.
Occurs at any age.	Most common in youth and childhood, rarely after 40.
Rare among the higher classes, except those exposed.	As common among the rich as the poor.
Mulberry Eruption on 4th or 5th day, on extremities, lasts till close.	Rose Eruption on 7th to 10th day, isolated, flattened papules, few, on abdomen and back, in successive crops, which fade and disappear.
Brain chiefly affected; bowels often but little so; abdomen natural, evacuations dark, but never bloody (these are occasionally reversed).	Bowels chiefly affected, evacuations ochre-color and watery, sometimes hemorrhage, or even ulceration, abdomen tumid.
Contracted pupils, dusky face.	Dilated pupils, cheeks flushed.
Pulse and temperature rise to 120 and 105° till 3d day, high for 6 days, then fall.	Pulse and temperature rise and fall independently, and without uniformity, but both are usually high to 15th day.
Lasts 2–3 weeks.	Last 4–6 or more weeks.
Relapses rare.	Relapses frequent.
Death from coma, or congestion of the lungs, in 1st or 2d week.	Death from asthenia, pneumonia, hemorrhage, or perforation of intestine, in or after 3d week.
Arises from destitution, over-crowding, bad ventilation, is highly contagious, and generally epidemic. No microbe determined.	From poisoned drinking water, putrid animal matter, bad drainage; is not contagious, often sporadic. Eberth's bacillus present in the lesions.
Post-mortem: not constant, most frequent are dark blood and enlarged spleen, soft heart.	Post-mortem: morbid Peyer's patches, enlarged mesenteric glands, ulcerated mucous coat of intestines; enlarged and soft spleen, ulcerated pharynx.

Yellow and Bilious Fevers.

Yellow Fever.	*Bilious Remittent.*
Duration short, ends in 3–7 days.	Lasts 9 days or more.
Incubation 5-9 days.	Incubation may extend to months.
A disease of one paroxysm, terminating in recovery or collapse.	A disease of several paroxysms, with intervening remissions.
Very severe nausea and vomiting, early epigastric tenderness.	These symptoms are not so severe nor do they occur so early.
Black vomit, due to gastric hemorrhage.	Bilious vomiting.
Hemorrhages from various parts.	No hemorrhagic tendency.
Tongue clean, or slightly coated.	Tongue heavily coated.
Pulse variable, slow at end.	Pulse quick until convalescence.
Eye injected and humid.	Eye natural.
Supra-orbital pain, pain in back and in calves of leg.	Headache, sense of fullness in head, often no loin or leg pains.
Rarely delirious, mind clear generally.	Delirium frequent, mind dull.
Urine albuminous, usually suppressed.	Not so.
Convalescence rapid, no sequelæ.	Convalescence slow, tedious sequelæ.
Muscular prostration slight.	Muscular prostration greater.
Mortality high, disease epidemic.	Mortality slight, disease endemic.
Treatment unsatisfactory.	Very amenable to treatment.
Autopsy: inflamed or congested stomach, enlarged yellow liver, filled with oil globules, muscular fibres of heart are often disintegrated.	Autopsy: stomach congested, rarely inflamed, liver olive or bronze hue, not fatty.

Vomiting.

Cerebral.	*Gastric or Hepatic.*
Little or no nausea, vomiting continues after stomach is emptied.	Nausea relieved by discharge, returns when food is taken.
No tenderness or pressure over the liver or stomach.	Liver and stomach are tender, pressure produces inclination to vomit.
Pulse infrequent and hard.	Pulse frequent and weak.
Tongue clean, breath sweet, conjunctivæ normal or injected, and headache primary.	Tongue furred, breath offensive, conjunctivæ often yellowish, and headache secondary as to time.
Constipation generally obstinate.	Griping abdominal pain, diarrhœa and clay-colored stools.
No salivation.	Increased salivation.

TEMPERATURE IN DISEASE.

Average Normal Temperature, of adults, 98.6° F.; of children, 99°; of the aged, 98.8°. Diurnal variation 1° to 1.5° F., highest from 9 A. M. to 2 P. M. Above 108° F. is a fatal sign, which issue may be averted by cold baths, reduced by ice from 96° to about 60° F. (A). The clinical thermometer placed in the mouth, axilla or rectum, and retained *in situ* for five minutes, should go hand in hand with Aconite in the treatment of inflammations (R). [For Antipyretics see the articles FEVER, INFLAMMATION, in part III, also the list of these agents on page 43.]

Clinical Thermometry is one of the principal means of positive diagnosis. The thermometer should be self-registering, certified, and accurately marked according to the Fahrenheit scale. The most reliable temperature is that in the rectum or vagina; less so in the axilla and folds of skin, and still less reliable in the mouth. A correct reading of the thermometer cannot be obtained in less time than five to seven minutes (Da Costa).

The Average Normal Temperature of the body is 98.6°; which, like the pulse, will vary somewhat in individual cases; as a general practical result, it is agreed that in temperate regions the normal temperature at completely sheltered parts of the surface of the human body amounts to 98.4° Fahr., or a few tenths more or less; and a rising above 99.5°, or a depression below 97.3° F., are sure indications of some kind of disease, if the increase or depression is persistent. The temperature is increased at the prime of life, is raised and depressed temporarily by the influence of diet, stimulants, exercise, etc. The minimum diurnal temperature is observed at 2 A. M., the maximum at 4 to 6 P. M. The greatest recorded range of temperature in disease is 50.4°; the minimum is 71.6° in a case of sclerema neonatorum (Quain's Dict.), the maximum 122°. In severe and fatal cases it rarely exceeds 107°, and rarely falls below 92°, even in fatal collapse. It may rise 3°–4° after death, as observed in a case of typhoid fever in which death occurred with a temperature of 107°, which increased shortly afterward to 110.5°. A temperature of 107° indicates malignancy, and when met with for two consecutive days in typhus, scarlatina, measles, pneumonia, pyæmia, meningitis or rheumatism, death may be expected shortly. In relapsing, remittent and intermittent fevers, and in the initial chill of an abortion, the temperature may reach 107° without indicating great danger. During the last hours of life, in many diseases, the temperature rises to 109°-111°; for example, in tetanus, sunstroke, typhus, etc. With a temperature of 96° collapse is imminent.

Abnormally High Temperatures reported in the British Medical Jour., by Dr. Donkin, include those of eight cases, all but one in females, and none proved fatal. Pain was a prominent symptom in all. (1) 111.6°; convalescing from enteric fever. (2) 108°; no organic lesions; ovarian pain. (3) 115.8°; great abdominal pain and excitement. (4) 111°; convalescing from enteric fever. (5) 113°; enteric fever and double pneumonia. (6) 112°; synovitis; this was the only male. (7) 112°; painful stump, with necrosis. (8) 117°; pyonephrosis.

High Average Temperature (above 104°), is found in severe pneumonia, scarlatina, remittent, typhus, typhoid and relapsing fevers, pyæmia, etc. Moderate High Temperature (102° and above), is seen in peritonitis, acute rheumatism, pericarditis, pleurisy, dysentery, cerebro-spinal-meningitis, catarrhs, etc. A temperature of 100° and above is found in chronic affections, incipient inflammations, and mild fevers. When, in effervescence, the heat increases rapidly, it will, in defervescence, decline proportionately fast, and *vice versa*. Beware of a grave affection when the temperature is of a continuous type. A distinct interval between morning and evening temperature is a favorable sign. A slow and gradual increase indicates typhoid fever; in rheumatism and anomalous fevers the increase is more rapid, and still more so in acute inflammatory disease, as pneumonia, angina, pleurisy, typhus, scarlatina, rubeola, etc. The rise is usually very rapid in intermittent fever, febricula, and ephemeral fevers. A rapid effervescence and slow defervescence indicates some complication of disease; the reverse order indicates great danger. When the temperature begins to fall from the evening to the morning, it is an indication of improvement; while a rise of temperature from the evening to the morning is a sure indication that the patient is worse. Stability of temperature from morning to evening is a good sign, but from evening to the morning is unfavorable.

Decrease of Temperature below the normal point is rare. It occurs sometimes transitorily, announcing thereby a favorable crisis, by preceding return to the normal temperature. It is also met with occasionally during the morning remission of remittent fever; also during the apyrexia of intermittents; in acute collapse, preceded or not by fever; in chronic wasting diseases; and sometimes, also, on the approach of death, especially in typhus fever.

In Phthisis, the temperature is higher in the evening than in the morning; later, higher at early bedtime than at noon, and high again at dusk. This is a valuable and delicate test of the progress of tuberculization.

In Typhoid Fever, the accession is by a rise of one degree each day, with the diurnal variation. If the evening temperature does not exceed 103.5°, the disease will probably be mild; but a temperature of 105° in the evening indicates a severe type and much danger. A sudden reduction to 95° in the third week denotes intestinal hemorrhage; a lingering temperature of 101°–102° in the fourth and fifth weeks indicates non-cicatrization of the intestinal ulceration.

In Scarlatina, the rise of temperature is rapid, 104.7° may be reached in a few hours. It seldom rises above 105° and almost never above 106°; is continuous until the eruption begins to fade, when remissions take place, unless complications arise.

In Measles, 103° is the usual temperature, with daily variations, increasing with the eruption and catarrhal symptoms. A high temperature lasting beyond the tenth day denotes complications.

In Diphtheria, the temperature by the end of the third day will, in uncomplicated cases, not exceed 103°–104°. It falls temporarily with the exudation. Defervescence in the severe, favorable cases, is from the twelfth to the fourteenth day; in the milder cases not before the sixth. In some fatal cases it occurs early, from the third to the fourth day. In asthenic cases the temperature of the surface falls, while that of the interior remains high, 100° in the axilla, and 103° in the rectum. During convalescence, the temperature is low, and readily depressed, but may be raised by intercurrent maladies. Any increase after the first five days, or a continuous high temperature after the first ten days is unfavorable. A sudden rise may indicate complications.

Co-Relation of Pulse and Temperature.—As a general rule the co-relation of pulse and temperature may be stated as follows, namely:—an increase of temperature of one degree above 98° F. corresponds with an increase of ten beats of the pulse per minute, as in the following table:—

Temperature of	98°	corresponds with	a pulse of	60.
"	99°	"	"	70.
"	100°	"	"	80.
"	101°	"	"	90.
"	102°	"	"	100.
"	103°	"	"	110.
"	104°	"	"	120.
"	105°	"	"	130.
"	106°	"	"	140.

CLINICAL EXAMINATION OF THE URINE.

Urine for Examination should be that passed in the morning, or a sample of all passed during the 24 hours.

Quantity. Normal quantity is about 50 fl. oz. in 24 hours, from which there may be considerable variation either way according to the quantity of sweat, the fluidity of food used, etc.

Specific Gravity. If possible, take the mixed urine. Normal sp. gr. is about 1.018, *i. e.*, 18 grains of solids in each fl. oz. If sp. gr. is high, suspect sugar; if low, suspect albumen.

Color and Specific Gravity. Urine pale and copious, of sp. gr. 1.030 and above, indicates the presence of sugar. Pale and copious, sp. gr. below 1.018, is seen in hysteria, convulsions, nervous diseases. Color high, urine scanty, sp. gr. above normal,—in fevers and the uric acid diathesis. Color high, urine scanty, sp. gr. below normal,—in Bright's disease. Urine is colored very yellow or greenish-yellow, by Bile and by Rhubarb: dark, with odor of violets, by Turpentine: dark, muddy, smoky, by blood and strong coffee: black, by disintegrated blood, putridity of the urine, Tar, Creosote: olive-green or smoky, by Carbolic Acid: brown, by Arbutin: green by Salicylic Acid: dark-green, by Thymol: dark-blue, by Methylene Blue: bluish-violet, by Resorcin: violet, by Juniper: greenish-yellow, reaction acid, by Santonin: reddish-purple, reaction alkaline, by Santonin: blood-red, by Hæmatoxylon: magenta, by Fuchsin: reddish-brown, by Sulphonal.

Smell,—fragrant, indicates Cystine or Sugar: fetid, alkalinity: of violets, Turpentine.

Reaction,—in health of 24-hours' urine, is always acid; but may be alkaline shortly after a meal. It is often alkaline from medicine or disease. If excessively acid, examine for crystals of uric acid. If alkaline, let the test-paper dry, so as to ascertain whether the alkali be fixed or volatile.

Albumen by Heat and Nitric Acid. With Acetic Acid, or dilute Ammonia, make the urine slightly acid, if alkaline or neutral. If a precipitate appear on boiling, it may be Albumen or Phosphates. Add a drop or two of Nitric Acid; if the precipitate dissolve, it is Phosphates; if not, it is Albumen. If a deposit or turbidity disappears on heating, it consists of Urates; if not, add a drop of Nitric Acid; if now dissolved, we have Phosphates; if not, Cystine. Other Tests are the Potassio-Mercuric Iodide, the Sodium Tungstate, Potassium Ferro-cyanide, and Picric Acid Tests; but the above described one, if carefully done, will give as good results as any.

Bile Pigment and Acids, if necessary. Vogel's color-table. Marechal's Test, as follows: Put ʒj of urine in a test-tube, and pour one or two drops of Tinct. Iodi to trickle down along the side of the tube, held horizontally nearly, so that the two fluids may touch, but not mix. If bile pigment be present, a fine green color will at once be developed below the red Iodine layer. Noel's Test, Pettenkofer's Test, Nitric Acid Test, Oxide of Silver Test.

Sugar, if necessary. Urine containing sugar is usually light-colored, froths readily when poured from one vessel to another, and has a high specific gravity. Fehling's Test, as follows: Add to the boiling urine a few drops of *freshly-prepared* Alkaline Cupric Tartrate Volumetric Solution (Fehling's Solution). If sugar be present, a yellow, orange or red precipitate of Cuprous Oxide will form, 10 Cc. of the solution being reduced by gramme 0.05 of diabetic sugar (anhydrous glucose). For the preparation of Fehling's solution, see *ante*, page 215. Much more convenient is Dr. Piffard's Cupro-Potassic Paste, or Dr. Pavy's Cupric Test Pellets, (See Tyson on Urine, page 57), or Wyeth's Compressed Tablets for preparing Fehling's Solution; a box of the latter costing only 50 cents, and obtainable in any good drug-store. The writer has used these tablets for several years with great satisfaction.

Pavy's Solution is a modification of Fehling's; is equally good for qualitative and volumetric testing, and is intended for those who prefer the apothecaries' weights and measures to the metric system. It is made in the same manner as Fehling's, 100 minims corresponding to ½ grain of diabetic sugar, and consists of—Copper Sulphate, gr. 320; Potassium Tartrate (neutral), gr. 640; Caustic Potash, gr. 1280; and Distilled Water, f℥ 20.

Other Tests for sugar are Böttcher's Bismuth Test, the Fermentation Test, Moore's, Trommer's, the Picric Acid and the Indigo-Carmine. They are all useful, but will not be detailed here, as one good method is all that the average practitioner wants.

Chlorides. Add a drop of Nitric Acid, and then Silver Nitrate until a precipitate ceases to form. Thus estimate the amount of Chlorides.

Urea. Place a drop of urine on platinum-foil, and to it add a drop of Nitric Acid, and leave undisturbed in a cool place for a minute or two. If the urea is in excess, crystals of Uric Nitrate form immediately.

To ascertain the percentage of urea present, use Parke, Davis & Co.'s Ureometer, employing the Solution of Sodium Hypobromite, instead of the solution of Chlorinated Soda, the former giving much the best results. This apparatus is simple, reliable, and quite accurate enough for clinical purposes.

Mucus and Pus resemble each other so closely under the microscope, that it is almost impossible for any one, except an expert, to distinguish between them thereby. Mucus is more cloudy and flocculent to the naked eye than Pus, which latter is generally of a stringy consistence and thickish yellow appearance at the bottom of the vessel. The supernatant liquid being poured off, and an equal bulk of Liquor Potassæ added, the deposit, if containing much pus, becomes gelatinized, and so tough that it cannot be poured out. If Mucus, Acetic Acid added coagulates it, forming delicate molecular fibres.

Other Deposits are best examined with the microscope, and compared with good plates, rather than with printed descriptions. The plates in Hoffmann and Ultzmann on Analysis of the Urine, will answer the wants of most general practitioners, but the text follows the metric system. The urinary deposits may be classified thus:—

In Alkaline Urine only.	In Alkaline or Acid Urine.	Organized Deposits.	
Calcium Phosphates	Uric Acid	Mucus	Torulæ
Ammonium Urates	Urates	Pus	Sarcinæ
Ammoniaco-magnesian, or Triple Phosphates.	Phosphates	Blood	Vibriones
	Oxalates	Tube-casts	Bacteria
	Cystine.	Spermatozoids, etc.	

Necessary Apparatus. A dozen Test-tubes. Alcohol lamp. A small porcelain dish. 2 watch-glasses. A sheet of platinum foil, ¾ inch square. 3 pipettes of different sizes, to be used only for urine. A 2-oz. graduate. Urinometer. Blue and red litmus-paper. The reagents mentioned above. A little Grape-sugar, for use in testing the Fehling's solution. Ureometer (Parke, Davis & Co.'s).

The foregoing directions comprise all that the average practitioner will usually perform in the matter of urinary analysis. For fuller directions, the reader is referred to one of the numerous manuals on the subject, among which may be mentioned Da Costa on Medical Diagnosis, Chapter VII,—Tyson on the Practical Examination of Urine,—and Sir Henry Thompson's Clinical Lectures on Diseases of the Urinary Organs, Lecture XXIV.

A "Physician's Pocket Reagent Case," intended for urinalysis at the bedside, is put up by Parke, Davis & Co., and sold at the low price of $1.50. It contains a set of Dr. Oliver's Test Papers or Pellets (the latter preferable), a color scale, specific gravity beads, two test tubes, a pipette, and full directions for the use of the reagents.

THE TREATMENT OF POISONING.

The most energetic poisons are Hydrocyanic Acid, some reptile poisons, Strychnine and Nicotine. (See pages 74, 306, 407.) Those usually selected for criminal purposes are Arsenic, Colchicum, and Tartarized Antimony, the symptoms of which resemble those of natural disease.

General Principles of Treatment. In the treatment of poisoning, whether by mineral or vegetable substances, if the poison is known, the first indication is to administer the proper chemical *Antidote*, so as to render it harmless or comparatively so. Next, the stomach should be emptied and washed out, lest the newly-formed compound be absorbed after a time, and also in order to remove any of the poison which may have escaped the action of the antidote. Next, the appropriate *Antagonist* should be administered, to counteract the effects of such portion of the poison as may have been absorbed. Lastly, such *Antagonistic Measures* should be employed as may sustain the action of any organic function showing signs of failure. In most cases of alkaloidal poisoning absorption has proceeded so far before professional assistance is obtained, that antidotes are of no value, and reliance can only be placed upon the physiological antagonist and such supporting measures as will tend to maintain vitality until the poison can be eliminated by the natural channels.

ANTIDOTES AND ANTIDOTAL MEASURES.

Antidotes affect a poison, either physically or chemically or both, so as to remove it from the body or alter its character before absorption, and thereby prevent its toxic action upon the organism. They do their work in the alimentary canal or in the respiratory passages, and are applicable to vegetable as well as mineral poisons, but are not available against poisons administered hypodermically. Among them are Emetics, Cathartics, Washes, Injections, Ligatures, Poultices, the use of the Stomach-pump, of tourniquets, etc., which are termed *Mechanical Antidotes;* and the *Chemical* or *True Antidotes*, which include Albumen, Milk, Charcoal, Soap, Starch, Oils, Tannin, Turpentine, Acids, Alkalies, Potassium Permanganate, Carbonates, Hydrates, Sulphates, Sodium Chloride, Iodine, Iron preparations, etc.

Albumen is an ideal antidote, being harmless, easily procured, and forming compounds, which are more or less insoluble, with most of the metallic salts, corrosive alkalies and mineral acids, as also with Iodine, Bromine, Chlorine, Creosote, Anilin, and alcoholic solutions of most of the Alkaloids. It is especially suitable against inorganic poisons, and was recommended by Orfila for invariable use, even on mere suspicion of poisoning. It should be well diluted, the whites of four eggs to a quart of lukewarm water; and should be followed by emetics and cathartics, as many of its compounds are soluble in an excess of itself.

Milk is a good substitute for Albumen, its range of action being nearly the same. It is contraindicated, however, when fatty antidotes are to be avoided, by reason of its richness in fat.

Oils and Fats are efficient against the corrosive acids and alkalies, metallic oxides and salts; but are contraindicated in poisoning by Phosphorus, Cantharis, or Copper salts, the absorption of which they promote.

Soap, as Castile Soap, dissolved in 4 times its bulk of hot water, to make "suds," and given by the cupful, is one of the most efficient antidotes against corrosive acids and metallic salts, especially Corrosive Sublimate, Potassium Bichromate, and salts of Tin and Zinc. It should not be used against alkalies.

Starch, in paste (1 part to 15 of water), is the antidote for Iodine and Bromine, and has some value against Corrosive Acids, Corrosive Sublimate, and Zinc and Copper Sulphates.

Tannin (Tannic Acid), precipitates the Alkaloids and their salts, with which it forms compounds (tannates), which, though comparatively insoluble, are not entirely inactive, and should be removed at once from the alimentary canal by emetics and drastic purgatives. It acts well against many metallic salts, though inferior to Albumen for these, except against Tartar Emetic, which albumen does not affect, but Tannin renders harmless. It is given in doses of gr. xv to xlv, in a 2 per cent. solution, every ¼ hour; and if not itself obtainable, decoctions or infusions of substances containing it may be used, as tea and coffee, nut-galls, kino, rhatany, catechu, and the barks of oak, willow and cinchona.

Magnesia (Magnesium Hydrate and Carbonate), when calcined, and gelatinized by mixing with 25 times its weight of warm water, is the most efficient antidote against Acids and their salts; also against Oxalic Acid and the acid Oxalates, in the absence of the calcium antidotes therefor. It is also valuable against Arsenic, Phosphorus, Corrosive Sublimate and other metallic salts, forming with Arsenic a compound which is almost insoluble. It is given in doses of ℥jss to ij at short intervals for a few doses, then at longer intervals. An excess does no harm, but rather benefits by its cathartic action.

Carbonates of Sodium and Potassium, also their Bicarbonates, are antidotal to most of the poisonous metallic salts, especially those of Zinc, which they immediately decompose, forming therewith insoluble basic compounds; also against Iodine, Bromine and Potassium Bichromate. They are contraindicated for Oxalic Acid, with which they form dangerous compounds.

Calcium Carbonate and Hydrate, as Lime-water, Chalk, Egg-shells, or Oyster-shells powdered, are employed against Acids, especially Oxalic Acid and the acid Oxalates, which they neutralize and convert into the insoluble calcium oxalate.

Sulphates, as Epsom and Glauber's Salts (Magnesium and Sodium Sulphates), are particularly efficient as antidotes against Carbolic Acid and salts of Lead and Barium.

Potassium Permanganate destroys organic poisons rapidly by oxidation, and is an efficient antidote therefor, if used promptly, before absorption has taken place. It has been employed successfully against Morphine and Strychnine salts in the stomach, and against snake-venom, locally.

Iron Oxide in the Hydrated form, freshly prepared, is the official and best antidote against Arsenic, in the proportion of 10 parts to 1 of the latter. Dialyzed Iron, Saccharated Iron, and the basic Ferric Acetate, have also been used successfully in Arsenic poisoning.

Emetics are often rendered needless by the vomiting brought on by the poison itself; and are contraindicated when there is severe corrosion of the alimentary canal, or when abdominal inflammation is present. *Zinc Sulphate*, gr. xx–xxx in water, is the best emetic for stomachal administration, being non-nauseating. For children, gr. v, or Tartar Emetic, gr. ss, in a little sweetened water. *Apomorphine*, gr. $\frac{1}{16}$–$\frac{1}{8}$, hypodermically, when narcosis prevents the use of emetics by the mouth. Apomorphine should always be administered hypodermically, as it is very uncertain in action when given otherwise. *Mustard* may be used, two teaspoonsful in a cup of warm water; or the fauces may be tickled with a feather or the finger, until emesis occurs.

Cathartics are useful after the chemical antidote, to remove its new compounds from the intestinal tract. The best are Castor and Croton Oils, Senna, and Epsom salt (Magn. Sulph.), but the Oils must be avoided in poisoning by Phosphorus, Cantharis or Copper salts.

Antidote Bag, designed by Martindale, of London, contains the following-named articles, labeled with directions for use, viz.—

Dialyzed Iron.
Syrup of Chloral.
Chloroform.
Spt. Chloroformi.
Calcined Magnesia.
Spt. Ammoniæ Aromat.
Oil of Turpentine.
Acetic Acid.
Tinct. Digitalis.
Tannic Acid.
Amyl Nitrite.
Zinc Sulphate.
Ipecacuanha.
Potassium Bromide.
Potassium Permanganate.

Also a Hypodermic Syringe and Solutions or Pellets therefor of—

Morphine Sulphate.
Atropine Sulphate.
Apomorphine Hydrochlorate.
Pilocarpine Nitrate.
Strychnine Nitrate.

General Antidotes have been devised for use when the nature of a poison is unknown, with the object of a "shot-gun prescription," intended to hit something. One of the best is Jeaunel's, composed as follows,—Liquor Ferri Sulphatis (sp. gr. 1.45) ℥ijss, Magnesia Calcinat. ℥ij, Carbo Animalis ℥j, Aqua ℥xx. These ingredients should be kept separate—the solution of the sulphate in one vessel, the others together. When needed, the former should be added to the latter and violently agitated. Dose, ℥jss to ℥iij. This is a perfect antidote to Arsenic, Zinc, Digitalin, etc. It delays the action of salts of Copper, Morphine and Strychnine, and slightly influences compounds of Mercury. It is valueless for Cyanide of Mercury, Tartar Emetic, Hydrocyanic Acid, Phosphorus, or the caustic Alkalies.

Bellini, of Florence, considers the Iodide of Starch a valuable antidote to alkaline Sulphides, earthy Sulphides, vegetable and caustic Alkalies, and Ammonia. In the first two cases he considers it superior to all other antidotes.

A fresh mixture of the Sulphides of Iron and Sodium with Magnesia, is said to be a perfect antidote for Copper salts, Corrosive Sublimate and Mercuric Cyanide. If the nature of the poison is entirely unknown, a harmless yet effectual antidote in most cases is one composed of equal parts of Magnesia, Wood Charcoal, and the Hydrated Ferric Oxide, given freely in plenty of water.

Bouchardat's Antidote for vegetable poisons consists of Iodine, gr. iij, Potassium Iodide, gr. xxx, Aqua Destillata ℥xj; the dose of which is ℥jss–iij frequently repeated.

Antagonists and Antagonistic Measures.

Antagonists in toxicology are agents which oppose each other in their physiological action, and may be employed against each other as counter-poisons, to neutralize their effects upon the organism. They do their work in the blood and tissues, after absorption, and are especially available against poisons administered hypodermically, in both which cases antidotes are useless. *Substances* so employed are generally the active principles of plants, a few being chemicals, as Oxygen and Chloral. *Antagonistic Measures* include such proceedings as tend to neutralize the remote effects of poisons, as artificial respiration, faradism of the respiratory muscles, hot and cold applications, douching, constant motion or absolute repose, etc.

Poisons, their Antidotes and Antagonists.

Acids. *Antidotes.*—Alkalies for the least irritant acids, Magnesia, Magnesium Oxide, Lime, slaked, Chalk; plaster from wall with water, milk, oil, white of egg, bland mucilaginous drinks and poultices (R). *Antagonists.*—See Acids, Mineral, below.

Acid, Acetic. *Antidotes.*—Magnesia or Magnesium Carbonate, freely; Soap and water, Lime-water, Chalk, White-wash; also milk, oils and thick gruel may be given. *Antagonists.*—Morphine, gr. ¼ hypodermically, to ward off shock.

Acid, Carbolic. *Antidotes.*—Any soluble Sulphate is the best, to form a sulpho-carbolate, as Magnesium or Sodium Sulphate, (Epsom or Glauber's salts). In a case where ½ oz. of 95 per cent. acid had been taken, nearly 3 ozs. of Magnesium Sulphate were used, resulting in full recovery from an apparently hopeless condition. Liquor Calcis Saccharatus, or the official Syrupus Calcis, given freely. Soap, in strong watery mixture (suds), is said to be almost a perfect antidote. Cider Vinegar may prove antidotal, as it removes the effects of the strong carbolic acid applied locally. Vegetable Demulcents, (but no oils or glycerin), to protect the mucous surface. Sodium Carbonate, in strong solution locally, for the effects of its local use in excess: this also as a wash for the mouth, if necessary. *Antagonists.*—Atropine is a very complete antagonist to the systemic symptoms, maintaining the heart and respiration until elimination occurs: gr. $\frac{1}{60}$ hypodermically. Amyl Nitrite, by inhalation. Alcoholic stimulants freely. Heat to the extremities, also Faradism and friction thereof. Venesection in desperate cases (Murrell).

Acid, Hydrocyanic (Prussic). Forty minims of the official diluted acid has proved a fatal dose. *Antidotes,*—if time to do anything. Per- and Proto-salts of Iron with Magnesia. Ammonia, diluted, by inhalation, or Chlorine-water as spray, for the vapors. Calcium or Sodium Chloride, gr. xxx–xl, in water. Emetics or stomach-pump. *Antagonists.*—Stimulants, as Brandy, Chloric Ether, Ammonia, ad libitum. Alternate hot and cold Douche, from a height. Artificial Respiration. Faradic current (mild) to chest walls and over cardiac region. Atropine has antagonistic action, but is too slowly diffused to be of any value. Ammonia by inhalation, by the stomach, and by intra-venous injection, with cold affusion to the spine, and artificial respiration, are the measures most likely to avail in cases where there is time to do anything.

Acids, Mineral. *Antidotes.*—Alkalies, as Sodium Carbonate, or Bicarbonate, Magnesia, or Chalk, Soap, Whiting, Wall-plaster, in water. Albumen, Flour, Milk, Starch, Olive Oil, to protect the mucous membrane. Avoid water in Sulphuric Acid cases. *Antagonists.*—Opium, Ammonia (intra-venously), Alcohol, as stimulants, to combat the depression of the vital powers.

Acid, Oxalic, also the Acid Oxalates, as Potassium Oxalate, known as "Salts of Lemon" or of "Sorrel," used for removing ink-stains. *Antidotes.*—Calcium Carbonate or Hydrate (as lime-water, chalk, whiting, wall-plaster, in water), or Magnesia. Avoid Potassium and Sodium Carbonates and Bicarbonates. Bland mucilaginous drinks and poultices to the abdomen.

Aconite. *Antidotes.*—Tannic Acid, or Animal Charcoal, powdered, in water. Emetics or the stomach-pump. Castor Oil, or other purgatives. Bland fluids, and poultices for abdominal irritation. *Antagonists.*—Atropine, Caffeine, Morphine, Ether, Ammonia, Amyl Nitrite, antagonize its effects on the heart and respiration. Digitalis antagonizes its action on the heart and its relaxation of cardiac inhibition (Fothergill). In Aconite-poisoning the stomach should be evacuated, warmth applied to the extremities, stimulants administered, artificial respiration if necessary, and the recumbent posture strictly maintained. Caffeine may be administered hypodermically, and strong Coffee by the mouth.

Alcohol. *Antidotes.*—Emetics or the stomach-pump, if much alcohol recently swallowed. *Antagonists.*—Ammonia by inhalation cautiously. Cold affusion to the head. Warmth to the extremities. Faradism of the muscles of respiration. Artificial Respiration. Chloral, gr. xx–xxx every 4 hours to secure sleep. Bromides for the same purpose, or Capsicum in doses of gr. xx–xxx. Ammonium Chloride, about ʒss in half a pint of water at one draught, has a marvellous effect in generally straightening up the victim, antagonizing stupor and restoring faculties. Hyoscine, as hypnotic, gr. $\frac{1}{100}$–$\frac{1}{80}$ hypodermically. [Compare Alcoholism and Delirium Tremens in Part III, also page 101, *ante*.]

Alkalies. *Antidotes.*—Acids, diluted, especially the vegetable acids, as Vinegar, Lemon-juice, etc. Albumen. Milk. Gelatin. Oils to protect the mucous surfaces. [Compare Ammonia below.] *Antagonists.*—Opium for the shock and vital depression, also Caffeine, Alcohol, and other stimulants.

Alkaloids. *Antidotes.*—Tannin holds high rank, forming tannates, which are comparatively insoluble. Potassium Permanganate (see *ante*, page 316) Albumen. Iodine. Charcoal. Emetics and cathartics afterwards. *Antagonists,*—differ for each. [See their several titles below.]

Alum. *Antidotes.*—Carbonates of Ammonium, Potassium, etc. Other treatment as for corrosive salts. [See METALLIC SALTS below.]

Ammonia. *Sources of Danger* are the use of Smelling Salts or Spirit of Hartshorn in excess, and the strong solution of Ammonia kept by housekeepers for laundry purposes. *Antidotes.*—Vinegar, Lemon- or Orange-juice, any Vegetable Acid, followed by demulcents to protect the mucous surfaces. When inhaled, give vapor of Acetic or Hydrochloric Acids or Chlorine-water by inhalation, the two latter forming the chloride. *Antagonists.*—Aconite, Veratrum, Digitalis, as cardiac sedatives.

Amyl Nitrite. *Antagonists.*—Ergot, Belladonna, Strychnine, Brucine, Digitalis, Picrotoxin, and all other agents which increase the functional activity of the spinal cord and sympathetic, are antagonistic, though not always available by reason of their slower rate of diffusion. Stimulants, artificial respiration, the alternate cold and hot douche, with cold to the head, and Ergotin or Atropine hypodermically, are the best measures to be used in cases of poisoning by the Nitrites.

Anæsthetics, (Ether, Chloroform, etc., by inhalation). *Antagonists.*—Atropine, hypodermically, is of great value in combating the cardiac and respiratory failure of Ether (Amidon in N. Y. Med. Record, May 2d, 1885); and is equally efficient in Chloroform poisoning, as I have found by experience (Potter). Amyl Nitrite by inhalation. Ammonia, the solution, ♏x in ♏xl aquæ, intravenously,—Bartholow says unsuccessfully. Heat to body and limbs, Ice in the rectum. Artificial Respiration. Faradism of respiratory muscles. Invert patient, draw tongue well forward with forceps, compress and relax chest, maintaining position until pulse and respiration are good (Nélaton). Oxygen by inhalation, fresh air, coffee.

Antimony, (as Tartar Emetic, etc.). *Antidotes.*—Tannin, or any substance containing it, is the antidote, forming the insoluble tannate. Carbonates of Magnesium and Sodium. Magnesia, in milk, especially for the Chloride of Antimony. Alkalies and Salts of Lead decompose Tartar Emetic. Emesis by tickling the fauces. Demulcent drinks freely, to protect the mucous membranes. Water, warm, in large draughts; or lavage of stomach with water first, then with solution of Tannin. Albumen, or Milk. *Antagonists.*—Opium, Alcohol, Ether, and other antispasmodics.

Arsenic (Arsenous Acid). Gr. ij have been fatal. *Antidotes.*—Hydrated Ferric Oxide, freshly precipitated, by precipitating a solution of Ferric Chloride with Sodium Carbonate or Ammonia,—or as the official Ferri Oxidum Hydratum cum Magnesia, (See *ante*, page 236), in the proportion of gr. viij for each grain of the poison ingested. Dialyzed Iron, is quite efficient as an antidote, is more easily obtained than the hydrated oxide, and has rendered good service in many cases of poisoning from inhaling arsenical fumes. Ferri Subcarbonas is equally good, ℥ij followed by Castor Oil (Leale); or Hydrated Magnesia, or Magnesia and Sugar (Carl). Magnesium Bicarbonate or other alkalies (R). Charcoal, ℥ss or more (R). Saccharated Ferric Oxide. Basic Ferric Acetate. Apomorphine, hypodermically, or Zinc Sulphate, as emetic, (avoid Tartar Emetic). Emesis by feather-tickling. Oil and Lime-water mixed, before and after emesis (Taylor). Milk or other bland fluids to wash stomach. Castor Oil after emesis. Magnesia and Linseed tea. Poultices and fomentations over abdomen. Potassium Iodide afterwards to promote elimination. *Antagonists.*—None.

Common Sources of Danger,—are arsenical wall-papers, Arsenic mistaken for "salts" or for "magnesia," adulterated confectionery, also Paris Green (Cupric Aceto-Arsenite) taken with suicidal intent.

Barium Salts. *Antidotes.*—Sulphate of Magnesium, Sodium (Epsom and Glauber's salts), Calcium, or Potassium. Diluted Sulphuric Acid.

Bee and Insect Venom. *Antidotes.*—Aqua Ammoniæ, Sodium Bicarbonate or Chloride, or Carbolic Acid, applied to the wound; or ♏xv of a 2 per cent.

solution of the first hypodermically, with Liquor Ammonii Acetatis internally. [Compare the article STINGS in part III.]

Belladonna and Atropine. Caustic alkalies decompose Atropine and are therefore incompatible with the preparations of Belladonna. *Antidotes.*—Tannin. Zinc Sulphate or Apomorphine, as emetics, or the Stomach-pump. Purgation. Magnesium Bicarbonate, and other alkalies (R). Charcoal, ℥ss or more is necessary (R). *Antagonists.*—Morphine is the physiological antagonist to the effects of Atropine on the cerebrum, pupils, heart, respiration, arterial tension and kidneys. Aconite, Physostigmine, Pilocarpine and Quinine are each antagonistic to some of its effects, Muscarine to most of them. Brandy or strong Coffee. Capsicum. Faradism of respiratory muscles. Flagellation. Cold to the head. Ammonia, breathed into air-passages (R).

Bromides. *Antidotes.*—Nitrous Ether is incompatible with Ammonium Bromide, Acids and Metallic Salts are so with all the Bromides. Poisoning thereby is always chronic, never acute, hence no antidotes can be employed. *Antagonists.*—Morphine is the most efficient, especially for the mental symptoms. Digitalis, Ergot, Belladonna, and other vaso-motor stimulants, antagonize many of the effects of the bromides. Cocaine is useful in chronic depressant poisoning thereby, and Alcohol with Opium as a nervous stimulant.

Bromine. *Antidotes.*—Albumen. Starch. Gelatin. Sodium and Potassium Carbonates and Bicarbonates. Against the irritant vapor, Ammonia vapor by inhalation, or steam inhalations. *Antagonists.*—Opium and Alcohol as stimulants, if much depression ensues.

Camphor. *Antidotes.*—Water to precipitate it from the alcoholic solution. Alkalies and earthy salts precipitate even the small quantity which is soluble in water. Emetics to remove as much as possible. *Antagonists.*—Aconite and other arterial sedatives. Coffee. Cold. Alcoholic stimulants. Opium and Bromides for the convulsions.

Cannabis Indica. *Antidotes.*—Emetics to remove as much as possible. Caustic Alkalies are incompatible. *Antagonists.*—Alcohol, as stimulant. Strychnine as respiratory stimulant. Faradism of muscles of respiration. Lemon-juice is said to antagonize its effects, which last over 24 hours from a large dose.

Cantharis. Avoid Oils, also fats and milk, which promote its absorption. *Antidotes.*—Emetics. Demulcents (as linseed tea, gruel, barley-water), freely. Water in large quantity, to flush the kidneys. Oleaginous injections into the bladder to allay irritation. There is no chemical antidote. *Antagonists.*—None, but Opium may be given for the gastro-enteritis.

Chloral Hydrate. All Alkalies are incompatible. *Antidotes.*—Emetics or the stomach-pump, if patient is seen shortly after ingestion of a toxic dose. Reliance must be placed on the antagonism of the following. *Antagonists.*—Strychnine, but only to a limited extent; though Chloral is the most perfect antagonist to strychnine, opposing its spinal action. Heat to the body and limbs, by hot blankets, hot water bottles, etc., is the most efficient antagonist. Atropine antagonizes its cardiac, respiratory and spinal depression, and should be used hypodermically, in small doses (gr. $\frac{1}{200}$), frequently repeated, until its effects are apparent. Morphine administered with Chloral antagonizes its tendency to produce cardiac failure, while synergistic to the hypnotic action of the drug. Cocaine is of value for the cardiac and respiratory depression. Alcoholic stimulation. Amyl Nitrite by inhalation. Frictions. Coffee, black, a pint injected into rectum, as for narcotic poisoning. Artificial Respiration.

Chlorine. *Antidotes.*—Albumen for Chlorine preparations in the stomach, also Aqua Ammoniæ in small quantity, well diluted. Ammonia vapor inhaled against Chlorine inhalations, forming Ammonium Chloride. Ammonium Sulphide has similar reaction, but should be used in great moderation. Fresh air. Steam inhalations. Emesis with warm water, then white of egg or milk, flour, or lime-water. *Antagonists.*—Chloroform by inhalation to ease the cough.

Chloroform (swallowed). *Antidotes.*—Sodium Carbonate in plenty of water. Emetics. Treatment as for irritant poisoning. *Antagonists.*—Atropine, hypodermically. Amyl Nitrite; by inhalation. Coffee, black, a pint into the rectum. Heat to the body and especially to the cardiac region. Rouse by slapping with wet towel. Mustard to calves of legs and over the heart. Relapse may occur, hence the patient should not be left for some time after apparent restoration.

Coal-gas. *Antidotes.*—Chlorine-water as spray, inhaled. *Antagonists.*—Oxygen by inhalation, 4 or 5 quarts. Ammonia vapor inhaled. Galvanism, by interrupted current to extremities. Artificial Respiration, to be maintained steadily for hours. Fresh air, in plenty; open all doors and windows. Coffee, black, a pint as enema. Venesection may be of service. Douche, alternately cold and warm, to head and chest. Horizontal position, clothing removed. Alcohol moderately by mouth or rectum. Catheter may be required in prolonged cases. Subsequently, a warm bed, open windows; Condy's fluid about the room, stimulants sparingly, cold acid drinks freely.

Cocaine. *Antidotes.*—See ALKALOIDS, above. *Antagonists.*—Chloral is the most direct antagonist, so also are Chloroform and Ether. Morphine is directly antagonistic at almost all points of action. Amyl Nitrite combats the earliest symptoms of cardiac depression, then Alcohol and Opium as cardiac stimulants. Artificial Respiration may be required.

Colchicum. *Antidotes.*—Tannic or Gallic Acid, followed by emetics and cathartics. Demulcent drinks, warm. *Antagonists.*—Alcoholic stimulants. Morphine, hypodermically for the cardiac depression. Treatment is the same as that for Aconite poisoning.

Conium. *Antidotes.*—Tannic or Gallic Acid, followed by emetics and cathartics. *Antagonists.*—Nux Vomica and its alkaloids, also Picrotoxin and other tetanizers. Alcohol. Muscular Movement. Heat applied externally, as soon as the stomach has been evacuated.

Copper Salts. *Antidotes.*—Albumen. Soap. Gluten. Milk. Sugar. Magnesia. Potassium Ferrocyanide. The latter is the most efficient chemical antidote, but Magnesia or Albumen may be used. In the absence of eggs, give a thin paste of flour and water. Any antidote should be followed by prompt evacuation of the stomach, and Potassium Iodide to saturation of the system. *Antagonists.*—Opium and Demulcents for the gastro-enteritis.

Corrosive Sublimate (Corrosive Mercuric Chloride). *Antidotes.*—Albumen. Gluten. Magnesia. Milk. Lime-water. Albumen, in some form, is the most efficient; the white of one egg to each 4 grains of the poison, forms the albuminate, which must be at once evacuated by emesis or the stomach-pump, it being soluble in an excess of albumen, also in the alkaline contents of the intestines. Potassium Iodide for after-treatment, converts the poison into soluble combinations and promotes their elimination. Charcoal, ℥ss or more necessary (R). Hydrated Protosulphide of Iron, if given within 20 minutes, is said to be an efficient antidote. *Antagonists.*—See under MERCURY, below. *Fatal Dose.*—gr. iij have proved fatal.

Creosote. *Antidotes.*—Mucilage, Oils, are the most easily obtained. *Antagonists.*—Ammonia, for depression. Treatment is the same as for Carbolic Acid, which see.

Curare. *Antidotes.*—Ligate above wound, if any; incise the part freely and suck it strongly. Evacuation of the bladder repeatedly, to prevent reabsorption. Caustic Alkalies destroy the poison. *Antagonists.*—Artificial Respiration is the most efficient antagonist, maintaining life until elimination occurs. Strychnine, though from a member of the same family of plants, is antagonistic as to the action upon the heart and respiration. So also is Atropine.

Cyanide of Potassium. *Antidote.*—Ferrous Sulphate to form Prussian Blue (Ferric Ferrocyanide), followed by evacuation of the stomach. *Antagonists.*—Ammonia, intravenously. Alcohol. Artificial respiration. [Compare ACIDUM HYDROCYANICUM, above].

Digitalis. *Antidote.*—Tannic Acid, to form the tannate, which, however, is not inert, so that the stomach should be immediately evacuated. *Antagonists.*—Aconite for the effects of large doses, Opium for those due to its continued use. Saponin and Senegin are its most complete physiological antagonists. Alcohol. Galvanism. Horizontal posture. The treatment is similar to that for Aconite.

Ergot. *Antidote.*—Tannic Acid, followed by an emetic. *Antagonists.*—Amyl Nitrite, Aconite, Veratrum Viride, Tobacco and Lobelia, antagonize its action on the circulation.

Fish-poison. *Antidotes.*—Emetics and Cathartics. *Antagonists.*—Potassium Chlorate freely. Liquor Ammonii Acetatis. Opium. Capsicum. Chloroform.

Gamboge. *Antidotes.*—Potassium or Sodium Carbonates. Magnesia in milk. Emetics. Mucilaginous drinks. *Antagonists.*—Opium for the depression. Alcoholic stimulants.

Gases and Vapors. See under ACID CARBONIC, ACID HYDROCYANIC, AMMONIA, CHLORINE, COAL-GAS, SULPHURETTED HYDROGEN.

Gelsemium. *Antidote.*—Tannic Acid, followed by an emetic or the stomach-pump, if recent. *Antagonists.*—Morphine is the most complete. Digitalis, Ammonia, Alcohol, Atropine, and to some extent the tincture of Xanthoxylum, are also antagonistic. Heat externally, Faradization of the respiratory muscles, and Artificial Respiration are measures of prime importance. Brandy and Capsicum are useful.

Glass (coarse or powdered). *Antidotes.*—Bread-crumbs freely to envelope it, then emetics.

Gold Salts. *Antidotes.*—Ferrous Sulphate. Albumen, as eggs or flour. Mucilage. Emetics. Treatment as for Corrosive Sublimate.

Hyoscyamus. See BELLADONNA, above.

Hypochlorites. See JAVELLE WATER, below.

Ignatia. See NUX VOMICA, below.

Iodine. *Antidotes.*—Starch. Albumen. Flour. Gelatin. Sodium and Potassium Carbonates and Bicarbonates. Starch is the antidote to free Iodine, but the stomach must be evacuated, as the Iodide of Starch is not inactive. In chronic poisoning by the Iodides, a free salivary flow induced by chewing Pyrethrum-root will hasten elimination of the drug. *Antagonists.*—Quinine, Digitalis, and other restorative agents and vaso-motor tonics. Amyl Nitrite. Morphine, for pain.

Ipecacuanha. *Antidotes.*—Vegetable Acids and Astringents are incompatible with Ipecac, and may be used as antidotes. *Antagonists.*—Bismuth, Carbolic and Hydrocyanic Acids, also Narcotics, antagonize the emetic action.

Iron. *Antidotes.*—Ammonium and Sodium Carbonates. Magnesia. Mucilaginous drinks.

Javelle Water (Potassium Hypochlorite), **Labarraque's Solution** (Sodium Hypochlorite), and **Bleaching Powder** (Calcium Hypochlorite). *Antidote.*—Sodium Hyposulphite, in dose of gr. xv, well diluted and frequently repeated, reducing them to chlorides, itself undergoing oxidation to the sulphate.

Lead Salts. *Antidotes.*—Sodium or Magnesium Sulphate. Sodium Phosphate. Diluted Sulphuric Acid. Magnesium Bicarbonate. Ferrous Sulphate, freshly precipitated. Albumen. Milk. Emetics or the stomach-pump. Potassium Iodide, gr. xv–xxx, 3 or 4 times daily, in cases of chronic poisoning, as eliminative (R). The cachexia is much relieved by a combination of Quinine Sulphate, Ferrous Sulphate and Diluted Sulphuric Acid (B). Baths of Potassa Sulphurata (℥j or more in the necessary water), are also very useful in chronic poisoning by Lead (R). *Antagonists.*—Opium, to allay irritation. Belladonna, the extract, gr. ⅛, with Pulv. Rhei, gr. ij, in pill twice daily, for the great pain at defecation (Da C). Alum, is the most efficient remedy for the colic; to a pint of boiling milk add 90 grains of powdered Alum, separate the curd and sweeten with sugar; give a wineglassful every hour or two (B). Strychnine, for the paralysis, gives good results; also Atropine, gr. $\frac{1}{100}$, with Potassium Iodide, gr. v. Electricity, a slowly interrupted current until it causes reaction, for the paralysis of extensors (dropped wrist); cure to be completed by the faradic current (B). *Marked Diagnostic Signs* of chronic poisoning by Lead are—the dropped wrist, due to paralysis of extensor muscles; dark, blue line around margin of gums.

Lime. *Antidotes.*—Calcium Chloride, Albumen. Mucilaginous drinks, or Oils. Milk. Flour and water. Avoid acids. *Antagonists.*—Opium, Alcohol, for vital depression.

Lobelia. *Antidotes.*—Tannic Acid, to form the insoluble tannate. Charcoal, powdered in water. [See ACONITE, above.] *Antagonists.*—Alcohol, Digitalis, Belladonna, Ergot, the vaso-motor excitants, antagonize its effects on the circulation; Strychnine, Picrotoxin, and Thebaine, those on the nervous system.

Mercury. [See CORROSIVE SUBLIMATE above, also METALLIC SALTS below.] *Antidotes.*—Albumen. Gluten. Flour. Milk. Vegetable astringents. Hydrated Protosulphide of Iron. Charcoal. Alkalies, especially Magnesium Bicarbonate (R). Potassium Iodide, to saturation of the system, as after-treatment; converts the metal into soluble combinations (B). Baths, simple or sulphurous (R). *Antagonists.*—Bismuth, Tannin, Sodium Sulphite, Diluted Nitric Acid in water, as gargles and mouth-washes for salivation. Belladonna, ♏v–x of tincture every 4 to 6 hours, to lessen secretion in ptyalism (B). Hyoscyamine, for the tremor, gr. $\frac{1}{30}$ gradually increased to gr. $\frac{1}{15}$ (Oulmont).

Metallic Salts. *Antidotes.*—Albumen. Milk. Magnesia. Starch. Soap. Oils and other demulcents. Sodium or Potassium Carbonate and Bicarbonate. Lavage of stomach. Emetics and cathartics. *Antagonists.*—Opium, Alcohol, Cocaine, and other stimulants, when shock and vital depression.

Mezereum. *Antidotes.*—Albumen. Milk. Oils and fats. Mucilaginous drinks. *Antagonists.*—Opium, as stimulant against shock and depression. Poultices, cool, to abdomen.

Morphine. See OPIUM, below.

Muscarine. *Antidotes.*—See ALKALOIDS, above. *Antagonists.*—Atropine exactly opposes Muscarine, and vice versâ. Digitalis is antagonistic to some extent, so also is Physostigmine. There is no example of physiological antagonism so complete in all particulars as that between Atropine and Muscarine. [See *ante*, page 92.]

Mushrooms. *Antidotes.*—Emetics, if poisoning very recent; Cathartics, especially Castor Oil, if some time has elapsed. Tannic Acid, has been recommended. *Antagonists.*—Atropine. Alcoholic stimulants. Poultices, warm, to abdomen. [Compare MUSCARINE, above.]

Nitrobenzol. *Antidotes.*—Ammonia, diluted, by inhalation. Emetics. *Antagonists.*—Alcohol, Liq. Ammoniæ (ʒss in water), or Chloric Ether (ʒj in water), frequently repeated, as stimulants, given internally, by enema or hypodermically (brandy). Atropine. Artificial Respiration. Galvanic current, interrupted, to chest-walls, and over cardiac region. *Fatal Dose.*—Death has resulted from merely tasting it.

Nitroglycerin. See AMYL NITRITE, above.

Nitrous Oxide Gas. *Antagonists.*—Artificial Respiration, to be commenced at once and kept up for two hours if necessary, not faster than 18 per minute. Fresh air, open all doors and windows, and fan the patient. Oxygen by inhalation, 3 or 4 pints. Douche to chest, alternately hot and cold. The tongue should be pulled well forward, and the mouth cleared of any obstruction to respiration, as artificial teeth. In apparently hopeless cases, two or three violent blows on the chest, delivered in quick succession, may restore the cardiac action (Murrell).

Narcotics. See ALKALOIDS, also OPIUM, BELLADONNA, etc. Vegetable Acids antagonize the after effects to some extent.

Nux Vomica and Strychnine. *Antidotes.*—Tannic Acid, forms the very insoluble tannate. Iodine in dilute solution, or a soluble salt thereof. Animal Charcoal, largely. Potassium Permanganate has been taken in large dose by Dr. Fahr, of Milford, N. J., after having ingested gr. $\frac{1}{4}$ of Strychnine, resulting in the entire absence of any symptoms of strychnine poisoning. Emetics or the stomach-pump should follow the administration of any antidote. The bladder must be frequently evacuated to prevent reabsorption. *Antagonists.*—Quiet, as perfect as possible, is very important. Chloral is the antagonist, gr. xxx as soon as possible, repeated in 20-grain doses at hourly intervals, as long as reflex exaltation continues. Potassium Bromide, is almost too slow of action to be of much practical service. Tobacco, by enema. Chloroform or Ether inhalation, to procure muscular relaxation. Physostigma is antagonistic (R). Chamomile Oil, remarkably subdues reflex excitability in frogs after poisoning by Strychnine or Brucine (P). Amyl Nitrite, by inhalation (R). Veratrum Viride, cured a bad case; ʒj was given at once, then gtt. ij every ten minutes (R). Urethan. Methyl and Ethyl compounds of Strychnine, Brucine, and Thebaine. Monobromated Camphor. Ice to spine. Valerian mitigates the spasms (P). Curare, gr. $\frac{1}{4}$ hypodermically; is warmly recommended, but its claims are doubtful (P). Nicotine, many cases prove its curative power (P). Hydrastinine Hydrochlorate, in doses of gr. j hypodermically, has been successfully employed. Artificial Respiration, if possible. *Fatal Dose of Strychnine,*—gr. $\frac{1}{2}$ for an adult, gr. $\frac{1}{16}$ for a child.

Opium and Morphine. *Antidotes.*—Tannic Acid, or vegetable astringents, followed by evacuation of the stomach, if the poison has been taken by the mouth. Charcoal, ℥ss or more (R). Compound Tincture of Iodine. Apomorphine, as emetic, gr. $\frac{1}{16}$ to $\frac{1}{10}$ hypodermically; must be administered before narcosis sets in (B). Stomach-pump better than emetics, which by the mouth are generally useless in these cases. Potassium Permanganate, an efficient antidote if given soon after ingestion of the poison,—(See *ante*, page 316); and as Morphine in part re-enters the stomach after making the round of the circulation, this antidote will probably act continuously if taken from time to time (Waugh). *Antagonists.*—Atropine, hypodermically, gr. $\frac{1}{120}$ every 15 minutes for three doses (B); antagonizes the cerebral action, also that on the respiration, heart, and arterial tension; but, if given too freely, will endanger the case by deepening the narcosis. No one is warranted in omitting it (P). Caffeine, is also antagonistic, and may be given hypodermically, though generally used in the form of strong coffee, frequently administered by mouth or rectum. Cocaine, is of especial value against the cardiac and respiratory depression. Strychnine, efficiently antagonizes the respiratory paralysis, and may be used in lieu of Atropine, or in conjunction therewith. Amyl Nitrite, by inhalation, or Ammonia by intravenous injection, when the heart shows signs of failure; the former proved eminently successful in a case wherein Atropine proved useless to restore the patient. Capsicum, the tincture, ℥ss–j by rectal injection, is said to antagonize the stupor almost instantaneously. Vegetable Acids, as Vinegar and water, Lemon-juice, Cream of Tartar in water, etc., every 10 minutes (R); to antagonize the narcotism. Douche, alternately cold and hot, or hot water and ice alternately to nape of neck, for the narcosis. Artificial Respiration, should be kept up for at least two hours (Murrell). Potassium Bromide removes some of the cerebral effects of Opium, as the vertigo and mental confusion; others are antagonized by Quinine, and the general intracranial effects of the drug are to some extent opposed by Digitalis and Tartar Emetic.

The Chief Indications in Opium-poisoning are—to evacuate the stomach, maintain respiration, and keep up the circulation. Faradization of the chest muscles, cold affusion and artificial respiration are of great value, and evacuation of the bladder frequently is important, to prevent reabsorption. Flagellation is a very dangerous procedure, from the exhaustion which may be thereby induced,—strong faradic currents are much more efficient. The anode should be placed over the lowest conjoined root of the phrenic nerve, the cathode three inches below the ensiform cartilage and a little to the left of the median line.

Common Sources of Danger.—Overdosing with cough mixtures, or Paregoric, or the Soothing Syrups so much used for quieting children, all of which contain Opium. The American Journal of Pharmacy estimates the loss of life from the latter cause at 150,000 yearly.

Fatal Doses.—See page 316, *ante.*

Phosphorus. *Antidotes.*—Cupric Sulphate as emetic and chemical antidote, forming a phosphide of copper, which is comparatively insoluble; doses of gr. iij in dilute solution every 5 minutes until emesis occurs. Turpentine, old and acid (French Turpentine) containing oxygen, is the best antidote; it may be given rapidly in a gum emulsion. Lime-water or Charcoal, to prevent action on the tissues. Hydrated Magnesia, as a quickly acting purgative; may be given in Linseed tea. Copper Carbonate, with sugar and water. Avoid Oils, Fats and Milk, as they dissolve the poison and promote its absorption. *Antagonists.*—Opium, to counteract the cardiac and systemic depression. Transfusion, to repair the blood.

Physostigma. *Antidotes.* Emetics or the stomach-pump. Tannic Acid or vegetable astringents. *Antagonists.*—Atropine, as to the effects on the respiration, heart and pupil; gr. $\frac{1}{50}$ to $\frac{1}{30}$ hypodermically, repeated until effects are evident. The one nine-thousandth of a grain of Atropine, injected 5 minutes before giving a minimum fatal dose of Physostigma, prevents its fatal result (R). Chloral, is also antagonistic, and over a greater field of action, but to be effective must be administered very early in the case (R); gr. x by mouth or rectum every ½ hour. Strychnine, gr. $\frac{1}{60}$ of the sulphate or gr. $\frac{1}{12}$ of the nitrate, hypodermically; or the Tincture of Nux Vomica, ♏xx by mouth or rectum, in very bad cases (Murrell). Stimulants, freely. Artificial Respiration. *Fatal Dose,*—gr. $1\frac{2}{10}$ is given as the minimum fatal dose.

Picrotoxin. *Antidotes.*—Emetics or stomach-pump. Acetic Acid gives relief in overdosing, and may have some antidotal power. *Antagonists.*—Chloral, is antagonistic to its cerebral and spinal action, but synergistic to its depressant power over the heart and respiration. Anæsthetics, against its spasm-producing action. Potassium Bromide, in addition to Chloral, if tetanus (Murrell).

Pilocarpine (Jaborandi). *Antidotes.*—Persalts of Iron and salts of the metals generally, are chemically incompatible. *Antagonists.*—Atropine, gr. $\frac{1}{100}$ for gr. $\frac{1}{8}$ of the poison, is a complete antagonist, the most so known to physiological experimentation. Conversely, Pilocarpine is exactly antagonistic to Atropine, but Jaborine acts similarly to the latter. Morphine controls the nausea and vomiting.

Potash. See ALKALIES, above.

Potassium Bichromate. *Antidotes.*—Sodium and Potassium Carbonates and Bicarbonates. Soap. *Antagonists.*—Opium or Alcohol, for the nervous and muscular depression.

Potassium Nitrate (Saltpetre). *Antidotes.*—No chemical antidote. Emetics or stomach-pump. Demulcent drinks and emollient enemata. Milk. *Antagonists.*—Opium, for the subsequent depression. Aromatics. Brandy.

Pulsatilla. *Antidotes.*—Tannic Acid, followed by Emetics. *Antagonists.*—Alcohol, Opium, Digitalis.

Quinine. *Antidotes.*—Emetics and cathartics, also diuretics and sudorifics to promote elimination. *Antagonists.*—Alcohol. Opium. Coffee. Morphine antagonizes its cerebral action, Atropine that on the nervous system and heart, also its antipyretic power.

Rat-pastes,—contain Phosphorus or Arsenic. *Ratsbane* is Arsenous Acid (Arsenic). *Rough-on-Rats* contains Arsenic.

Reptile-venom. *Antidotes.*—Potassium Permanganate, hypodermically into vicinity, after ligating the part above the wound. Carbolic Acid, strong, or a Mineral Acid, as caustic, after forcible sucking of wound by a person with perfect mucous surface of lips and mouth, and thorough cleansing. Ammonia, ♏xij of Liq. Ammoniæ, diluted with 3 volumes of water, hypodermically into the radial vein, for snake-poison (Halford); is shown to be unavailing by Brunton and Fayrer (B). *Antagonists.*—Alcohol, as Brandy or Whiskey, freely. Agave Americana. Arsenic, internally for the rapid prostration (R). ℞. Potassii Iodidi, gr. iv; Hydrarg. Chlor. Corr., gr. ij; Bromi, ʒv; Aquæ, ʒj; of which gtt. x in ʒij of Brandy, repeated if necessary (Hammond). Viola Cucullata, the common Violet, is used in Pennsylvania against rattlesnake venom. [See *ante*, page 424.]

Resorcin. *Antidotes.*—Albumen. Soda or Saccharated Lime, in plenty of tepid water, as wash for stomach. Emetics or the stomach-pump. *Antagonists.*—Stimulants freely. Heat to the extremities. Amyl Nitrite, inhaled. Atropine and other cardiac and respiratory stimulants, cerebral excitants, and agents which raise the arterial tension, are physiologically antagonistic. Friction with warm hand. Galvanism, the interrupted current. *Fatal Dose.*—ʒij nearly proved fatal (Murrell).

Rhus (Poison Oak or Ivy). *Antagonists.*—Cocaine, a 5 per cent. aqueous solution, or a 10 per cent. oleate, locally, is by far the most efficient application, promptly relieving the burning and itching. Grindelia Robusta, the fluid extract, 1 to 10 of water, or undiluted, is a very serviceable lotion. Other applications found useful are—Carbolic Acid, 5 per cent. solution; Lobelia, as infusion, ℥j to the pint; solutions of Corrosive Sublimate, Lead Acetate, Chlorinated Soda, Lime-water with Linseed Oil, Alum-curd. ℞. Plumbi Acetatis, ʒij; Ammonii Chloridi (crude), ℥ss; Aquæ, ℥viij; as lotion on cloths constantly wetted therewith, is used with uniform success (Burns). Soap-suds and Hot Water, frequent washing therewith the surest, speediest and best treatment (Couch). Aristol, freely dusted over the part, gives magical relief (Levick). Opium or Coffee, to relieve the nervous irritability. Rest, low diet, and laxatives are appropriate measures.

Sanguinaria. *Antidotes.*—Tannin, Alkalies, and most of the metallic salts are incompatible. *Antagonists.*—Opium, Atropine, Amyl Nitrite, etc., to antagonize the depression of the circulation and the local irritant action of the poison.

Savine. *Antidotes.*—Epsom salt. Demulcents. Emetics and purgatives, especially Castor Oil. *Antagonists.*—Morphine, gr. ¼ hypodermically. Poultices of linseed meal to abdomen.

Silver Salts. *Antidotes.*—Sodium Chloride (common salt), dissolved in water, largely diluted and freely used; precipitates the silver as the insoluble and harmless chloride, and acts as an emetic (R). Alkalies, especially Magnesium Bicarbonate (R). Albumen. *Antagonists.*—Milk, to allay the resulting irritation; it may serve as food until the stomach is restored. Opium, against results of irritation. [See also METALLIC SALTS, above. For treatment of chronic poisoning, and regulation of a course of silver medication, see page 128, *ante*.]

Snake-bite. See REPTILE-VENOM, above.

Soda and Sodium Salts. See ALKALIES and POTASSIUM NITRATE, also METALLIC SALTS, above.

Stramonium. See BELLADONNA, above.

Strychnine. See NUX VOMICA, above.

Sulphur and Sulphides. *Antidotes.*—Chlorine-water. Sodium Chloride (common salt). Potassium Chloride. Ferrous Sulphate. Chlorine Gas, for Sulphuretted Hydrogen; it should be well diluted with common air. *Antagonists.*—Artificial Respiration is the best treatment for poisoning by Sulphuretted Hydrogen.

Tartar Emetic. See ANTIMONY, above.

Tin. *Antidotes.*—Albumen. Ammonium and Sodium Carbonates. Milk. [See also METALLIC SALTS, above.]

Tobacco. *Antidotes.*—Tannin, followed by Emetics, or the stomach-pump. Iodides. *Antagonists.*—Strychnine is the true physiological antagonist to Nicotine (or Tobacco) and vice versâ. Alcohol, Ammonia, Ergot, Digitalis, Belladonna, antagonize its action on the circulation. Brandy is efficient, also strong coffee. Warmth applied to the surface, also friction. Artificial Respiration. Recumbent position should be strictly maintained.

Turpentine. *Antidotes.*—Magnesium Sulphate (Epsom salt), ℥j in water. Emetics or the stomach-pump. Demulcent drinks, as milk, barley-water, etc. *Antagonists.*—Opium or Morphine, if much pain, and for shock.

Veratrum and Veratrine. *Antidotes.*—Emetics or the stomach-pump. *Antagonists.*—Alcohol, Opium, Ammonia, Digitalis, and Belladonna counteract the cardiac depression. Morphine with Atropine hypodermically, or Laudanum internally, with alcoholic stimulants. Heat, dry, applied to the body. Recumbent posture strictly maintained. Coffee, strong, as enema. [See also ACONITE, above.]

Wounds, Poisoned.—*Antidotes.*—Ammonium Carbonate, gr. v hypodermically in the vicinity of wounds caused by poisoned arrows, was repeatedly used with entire success by Dr. Parke, surgeon to Stanley's last African expedition. [See *ante*, page 110; also REPTILE-VENOM above, and the article WOUNDS, in Part III.]

Zinc Salts. *Antidotes.*—Sodium or Potassium Carbonates dissolved in warm water, largely diluted, used freely. Albumen, as eggs and milk, with tepid water, freely. Tannic Acid, or vegetable astringents, or strong tea. Lime-water. Soap-suds, freely. Mucilaginous drinks. *Antagonists.*—Opium, or Morphine hypodermically. Linseed-meal as poultices to abdomen. Enemata of gruel or starch-and-water, if much abdominal pain.

TABLE OF SPECIFIC GRAVITIES AND SPECIFIC VOLUMES.

(Temperature at 59° F., except when otherwise stated. Where the sp. gr. is variable, the mean specific gravity is stated.)

Liquid.	Specific Gravity.	Specific Volume.	Liquid.	Specific Gravity.	Specific Volume.
Acid, Acetic, ...	1.048	.954	Liq. Ferri Tersulph., .	1.320	.757
Acid, Acetic Dil., . . .	1.008	.992	Liq. Potassæ, ...	1.036	.965
Acid, Hydrobromic, (34 per cent.), ...	1.303	.767	Liq. Sodæ, ...	1.059	.944
			Mel (Honey), ...	1.375	.727
Ac. Hydrobrom. Dil., .	1.077	.928	Ol Adipis, ...	.915	1.092
Ac. Hydrochloric, . .	1.163	.860	Ol. Amyg. Expres., . .	.917	1.091
Ac. Hydrochlor. Dil., .	1.059	.952	Ol. Aurant. Cort., . . .	.850	1.176
Acid, Lactic, ...	1.213	.824	Ol. Bergamottæ, . .	.883	1.132
Acid, Nitric, ...	1.414	.709	Ol. Caryophylli, ...	1.065	.939
Acid, Nitric. Dil., . . .	1.057	.946	Ol. Copaibæ, ...	.900	1.111
Acid, Oleic., ...	.900	1.111	Ol. Cubebæ, ...	.920	1.085
Acid, Phosphoric, . .	1.710	.584	Ol. Eucalypti, ...	.920	1.086
Ac. Phosphoric, Dil., .	1.057	.946	Ol. Gaultheriæ, . . .	1.180	.848
Acid, Sulphuric, . . .	1.835	.545	Ol. Gossyp. Sem., . .	.925	1.081
Ac. Sulphuric. Dil., .	1.070	.934	Ol. Lavandulæ, ...	.886	1.128
Æther, ...	.725	1.379	Ol. Limonis, ...	.858	1.165
Alcohol, at 60° F., . .	.820	1.219	Ol. Lini, ...	.936	1.068
Alcohol, at 77° F., . .	.812	1.231	Ol. Menthæ Pip., . . .	.910	1.098
Alcohol, Dil., at 60° F.,	.937	1.066	Ol. Morrhuæ, ...	.923	1.083
Alcohol, Dil., at 77° F.,	.930	1 075	Ol. Olivæ, ...	.916	1.091
Aqua Destil., at 59° F.,	1.000	1.000	Ol. Ricini, ...	.960	1.042
Aq. Ammoniæ, . . .	.960	1.042	Ol. Rosmarini, ...	.905	1.104
Aq. Ammon., Fort., . .	.901	1.109	Ol. Sassafras, ...	1.080	.925
Benzin, ...	.670	1.493	Ol. Sesami, ...	.921	1.194
Carbon Disulphide, . .	1.268	.788	Ol. Terebinthinæ, . . .	.862	1.160
Chloroform, ...	1.490	.671	Spt. Ætheris Nitrosi, .	.839	1.191
Chloroform, Venale, . .	1.470	.680	Spt. Frumenti, ...	.920	1.086
Glycerin, ...	1 250	.800	Spt. Vini Gallici, . . .	.933	1.071
Liq. Ferri Acet., . . .	1.160	.862	Syrupus, ...	1.317	.759
Liq. Ferri Chlor., . . .	1.387	.721	Vinum Album, ...	1.000	1.000

TABLE SHOWING THE NUMBER OF DROPS IN A FLUIDRACHM

OF VARIOUS LIQUIDS, ALSO THE WEIGHT OF ONE FLUIDRACHM IN GRAINS.

(COMPARE PAGE 438.)

Liquid.	Drops in fʒj. (♏lx.)	Weight of fʒj in grains.	Liquid.	Drops in fʒj (♏lx.)	Weight of fʒj in grains.
Acetum Opii, ...	90	61	Liq. Iodi Compos,, ...	63	59
Acetum Scillæ, ...	68	57	Liq. Potassæ, ...	62	58
Acid, Acetic, ...	108	58	Liq. Zinci Chloridi, ...	89	88
Ac. Acetic. Dil., ...	68	55	Oleores. Aspidii, ...	130	52
Acid, Carbolic, ...	111	59	Oleores. Capsici, ...	120	51
Ac. Hydrochloric, . . .	70	65	Oleores. Cubebæ, ...	123	52
Ac. Hydrocyanic, ...	60	54	Oleum Anisi, ...	119	54
Acid, Lactic, ...	111	66	Oleum Bergamottæ, ...	130	46
Acid, Nitric, ...	102	77	Oleum Cari, ...	132	50
Ac. Nitro-hydrochloric, .	76	66	Oleum Juniperi, ...	148	49
Ac. Phosphoric Dil , . .	59	57	Oleum Limonis, ...	129	47
Ac. Sulphuric, ...	128	101	Oleum Ricini, ...	77	51½
Ac. Sulph. Aromat., . . .	146	53	Oleum Rosæ, ...	132	47
Ac. Sulph. Dil., ...	60	58½	Oleum Terebinthinæ, . . .	136	45½
Ac. Sulphurosum, ...	59	55	Oleum Tiglii, ...	104	50
Æther, ...	176	39	Spt. Ætheris Comp , . .	148	45
Alcohol, ...	146	44	Spt. Ætheris Nitrosi, . . .	146	47
Aqua, ...	60	55	Spt Camphoræ, ...	143	47
Aqua Destillata, ...	60	53½	Syrupus, ...	65	72
Balsam Peruvian, ...	101	60	Syrupus Acaciæ, ...	44	73
Bromine, ...	250	165	Syrupus Ferri Iodidi, . . .	65	77
Chloroform, ...	250	80	Syrupus Scillæ, ...	75	74
Copaiba, ...	110	51	Syr. Scillæ Comp, ...	102	70
Creosote, ...	122	56½	Syrupus Senegæ, ...	106	70
Ext. Belladon, Fl., . . .	156	57	Tinctura Aconiti, ...	146	46
Ext. Buchu Fl., ...	150	47½	Tinctura Belladonnæ, . .	137	58
Ext. Digitalis Fl., ...	134	62	Tinct. Benzoini Comp., . .	148	48
Ext. Ergotæ Fl., ...	133	60	Tinct. Cantharidis, ...	131	51
Ext. Ipecac. Fl., ...	120	60	Tinct. Digitalis, ...	128	53
Ext. Rhei Fl., ...	158	61	Tinct. Ferri Chlor., ...	150	53
Ext. Senegæ Fl., ...	137	62	Tinct. Iodi, ...	148	47
Ext. Valerianæ Fl , . . .	150	49	Tinct. Opii, ...	130	53
Ext. Zingib. Fl., ...	142	48	Tinct. Opii Camph., ...	130	52
Glycerin, ...	67	68	Tinct. Opii Deodor., . . .	110	54
Hydrargyrum, ...	150	760	Vin. Colchici Rad., ...	107	55
Liq. Acidi Arsenosi, . . .	57	55	Vin. Colchici Sem., ...	111	54
Liq. Ferri Chloridi, . . .	71	72	Vinum Opii, ...	100	55

WEIGHTS AND MEASURES.

APOTHECARIES' OR TROY WEIGHT.

Pound.	*Ounces.*	*Drachms.*	*Scruples.*	*Grains.*
℔	℥	ʒ	℈	gr.
1	= 12	= 96	= 288	= 5760
	1	= 8	= 24	= 480
		1	= 3	= 60
			1	= 20

METRIC WEIGHTS.

1 Milligramme, ...	0.001	gr. $\frac{1}{65}$
1 Centigramme, ...	0.01	= gr. $\frac{1}{6}$
1 Decigramme, ...	0.1	= gr. 1½
1 GRAMME, ...	1.	= gr. 15.432
Kilogramme, ...	1000.	= ℔ 2.7

APOTHECARIES' OR WINE MEASURE.

Gallon.	*Pints.*	*Fl'ounces.*	*Fl'dr'ms.*	*Minims.*
C.	O.	f℥	fʒ	♏
1	= 8	= 128	= 1024	= 61440
	1	= 16	= 128	= 7680
		1	= 8	= 480
			1	= 60

APPROXIMATE EQUIVALENTS.

♏j or gr. j, ... = .06 gramme.

fʒj or ʒj, ... = 4. grammes.

f℥j, ... = 30. "

℥j, ... = 31. "

f℥j of Glycerin, ... = 37. "

f℥j of Syrups, ... = 40. "

TABLE FOR CONVERTING APOTHECARIES' WEIGHTS AND MEASURES INTO METRIC.

(ADAPTED FROM MAISCH.)

[Multiply all grains, or fractions of a grain, by 6479 (or 648) for the metric equivalent in milligrammes.—POTTER.]

Troy Weight.	Metric.
Grains.	Grammes.
	Milligramme.
1/64	.001
1/40	.0015
1/30	.002
1/20	.003
1/16	.004
1/12	.005
1/10	.006
1/8	.008
	Centigramme
1/6	.010
1/4	.016
1/3	.02
1/2	.03
3/4	.05
1	.065
	Decigramme.
2	.13
3	.20
4	.26
5	.32
6	.39
7	.45
8	.52
9	.59
10	.65
	Gramme.
15	1.00
20 (℈j)	1.30
24	1.50
26	1.62
30 (ʒss)	1.95
40	2.60
50	3.20
60 (ʒj)	3.90
100	6.48
120 (ʒij)	7.80
180	11.65
240 (℥ss)	15.50
300	19.40
360	23.50
420	27.20
480 (℥j)	31.10
960 (℥ij)	62.20
1000	64.79

Apothecaries' Measure.	Fluid Grammes or Cubic Centimeters.		
	Liquids Lighter than Water.*	Liquids of Specific Gravity of Water.†	Liquids Heavier than Water.‡
♏ 1	.055	.06	.08
2	.10	.12	.15
3	.16	.18	.24
4	.22	.24	.32
5	.28	.30	.40
6	.32	.36	.48
7	.38	.42	.55
8	.45	.50	.65
9	.50	.55	.73
10	.55	.60	.80
12	.65	.72	.96
15	.80	.90	1.20
16	.90	1.00	1.32
20	1.12	1.25	1.60
25	1.40	1.55	2.00
30	1.70	1.90	2.50
35	2.00	2.20	2.90
40	2.25	2.50	3.30
48	2.70	3.00	4.00
50	2.80	3.12	4.15
60 (fʒj)	3.40	3.75	5.00
65	3.60	4.00	5.30
72	4.00	4.50	6.00
80	4.50	5.00	6.65
90 (fʒjss)	5.10	5.60	7.50
96	5.40	6.00	8.00
100	5.60	6.25	8.30
120 (fʒij)	6.75	7.50	10.00
150 (fʒijss)	8.50	9.50	12.50
160	9.00	10.00	13.30
180 (fʒiij)	10.10	11.25	15.00
210 (fʒiijss)	11.80	13.00	17.50
240 (fʒiv)	13.50	15.00	20.00
300 (fʒv)	16.90	18.75	25.00
330 (fʒvss)	18.60	20.75	27.50
360 (fʒvj)	20.25	22.50	30.00
420 (fʒvij)	23.60	26.25	35.00
480 (f℥j)	27.00	30.00	40.00
540 (fʒix)	30.40	33.75	45.00
600 (fʒx)	33.75	37.50	50.00
720 (fʒxij)	40.50	45.00	60.00
840 (fʒxiv)	47.25	52.50	70.00
960 (f℥ij)	54.00	60.00	80.00
1000	56.00	62.50	83.00

---

* Lighter than water are tinctures, spirits, compound spirit of ether, sweet spirit of nitre, fixed and volatile oils. Æther, fʒj = grammes 2.80.

† Same as water are waters, liquids, decoctions, infusions, most fluid extracts, and tinctures made with dilute alcohol.

‡ Heavier than water are syrups, glycerin, a few fluid extracts, and chloroform. Of the latter fʒj = grammes 5.50.

A TABLE OF PRESCRIPTION DOSES AND QUANTITIES.

DESIGNED AND CALCULATED BY DR. SAM'L O. L. POTTER, M.R.C.P. LOND.

Grains in Entire Mixture	Grains in each ʒ dose in a mixture of							
	℥I	℥IJ	℥IIJ	℥IV	℥VI	℥VIIJ	℥XIJ	℥XVI
$\frac{1}{10}$	$\frac{1}{80}$	$\frac{1}{160}$	$\frac{1}{240}$	$\frac{1}{320}$				
$\frac{1}{8}$	$\frac{1}{64}$	$\frac{1}{128}$	$\frac{1}{192}$	$\frac{1}{256}$	$\frac{1}{384}$			
$\frac{1}{6}$	$\frac{1}{48}$	$\frac{1}{96}$	$\frac{1}{144}$	$\frac{1}{192}$	$\frac{1}{288}$	$\frac{1}{384}$		
$\frac{1}{4}$	$\frac{1}{32}$	$\frac{1}{64}$	$\frac{1}{96}$	$\frac{1}{128}$	$\frac{1}{192}$	$\frac{1}{256}$		
$\frac{1}{3}$	$\frac{1}{24}$	$\frac{1}{48}$	$\frac{1}{72}$	$\frac{1}{96}$	$\frac{1}{144}$	$\frac{1}{192}$	$\frac{1}{288}$	
$\frac{1}{2}$	$\frac{1}{16}$	$\frac{1}{32}$	$\frac{1}{48}$	$\frac{1}{64}$	$\frac{1}{96}$	$\frac{1}{128}$	$\frac{1}{192}$	
$\frac{2}{3}$	$\frac{1}{12}$	$\frac{1}{24}$	$\frac{1}{36}$	$\frac{1}{48}$	$\frac{1}{72}$	$\frac{1}{96}$	$\frac{1}{144}$	$\frac{1}{192}$
$\frac{3}{4}$	$\frac{1}{11}$	$\frac{1}{22}$	$\frac{1}{32}$	$\frac{1}{43}$	$\frac{1}{64}$	$\frac{1}{86}$	$\frac{1}{128}$	$\frac{1}{172}$
I	$\frac{1}{8}$	$\frac{1}{16}$	$\frac{1}{24}$	$\frac{1}{32}$	$\frac{1}{48}$	$\frac{1}{64}$	$\frac{1}{96}$	$\frac{1}{128}$
ISS	$\frac{2}{11}$	$\frac{1}{11}$	$\frac{1}{16}$	$\frac{1}{22}$	$\frac{1}{32}$	$\frac{1}{43}$	$\frac{1}{64}$	$\frac{1}{86}$
IJ	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{12}$	$\frac{1}{16}$	$\frac{1}{24}$	$\frac{1}{32}$	$\frac{1}{48}$	$\frac{1}{64}$
IJSS	$\frac{1}{3}$	$\frac{1}{6}$	$\frac{1}{9}$	$\frac{1}{12}$	$\frac{1}{20}$	$\frac{1}{24}$	$\frac{1}{40}$	$\frac{1}{48}$
IIJ	$\frac{3}{8}$	$\frac{1}{5}$	$\frac{1}{8}$	$\frac{1}{11}$	$\frac{1}{16}$	$\frac{1}{20}$	$\frac{1}{32}$	$\frac{1}{40}$
IIJSS	$\frac{3}{7}$	$\frac{2}{9}$	$\frac{1}{7}$	$\frac{1}{9}$	$\frac{1}{14}$	$\frac{1}{18}$	$\frac{1}{28}$	$\frac{1}{36}$
IV	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{6}$	$\frac{1}{8}$	$\frac{1}{12}$	$\frac{1}{16}$	$\frac{1}{24}$	$\frac{1}{32}$
IVSS	$\frac{4}{7}$	$\frac{2}{7}$	$\frac{2}{11}$	$\frac{1}{7}$	$\frac{1}{11}$	$\frac{1}{14}$	$\frac{1}{22}$	$\frac{1}{28}$
V	$\frac{5}{8}$	$\frac{5}{16}$	$\frac{1}{5}$	$\frac{1}{6}$	$\frac{1}{10}$	$\frac{1}{12}$	$\frac{1}{20}$	$\frac{1}{24}$
VI	$\frac{3}{4}$	$\frac{3}{8}$	$\frac{1}{4}$	$\frac{1}{5}$	$\frac{1}{8}$	$\frac{1}{10}$	$\frac{1}{16}$	$\frac{1}{20}$
VIJ	$\frac{7}{8}$	$\frac{3}{7}$	$\frac{2}{7}$	$\frac{2}{9}$	$\frac{1}{7}$	$\frac{1}{9}$	$\frac{1}{14}$	$\frac{1}{18}$
VIIJ	1	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{6}$	$\frac{1}{8}$	$\frac{1}{12}$	$\frac{1}{16}$
IX	$1\frac{1}{8}$	$\frac{4}{7}$	$\frac{3}{8}$	$\frac{2}{7}$	$\frac{2}{11}$	$\frac{1}{7}$	$\frac{1}{11}$	$\frac{1}{14}$
X	$1\frac{1}{4}$	$\frac{5}{8}$	$\frac{2}{5}$	$\frac{3}{10}$	$\frac{1}{5}$	$\frac{1}{6}$	$\frac{1}{10}$	$\frac{1}{12}$
XI	$1\frac{3}{8}$	$\frac{11}{16}$	$\frac{4}{9}$	$\frac{4}{11}$	$\frac{2}{9}$	$\frac{2}{11}$	$\frac{1}{9}$	$\frac{1}{11}$
XIJ	$1\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{4}$	$\frac{1}{5}$	$\frac{1}{8}$	$\frac{1}{10}$
XIIJ	$1\frac{5}{8}$	$\frac{4}{5}$	$\frac{6}{11}$	$\frac{2}{5}$	$\frac{3}{11}$	$\frac{1}{5}$	$\frac{1}{8}$	$\frac{1}{10}$
XIV	$1\frac{3}{4}$	$\frac{7}{8}$	$\frac{4}{7}$	$\frac{3}{7}$	$\frac{2}{7}$	$\frac{2}{9}$	$\frac{1}{7}$	$\frac{1}{9}$
XV	$1\frac{7}{8}$	$\frac{15}{16}$	$\frac{5}{8}$	$\frac{5}{11}$	$\frac{5}{16}$	$\frac{2}{9}$	$\frac{1}{7}$	$\frac{1}{9}$
XVI	2	1	$\frac{2}{3}$	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{6}$	$\frac{1}{8}$
XVIJ	$2\frac{1}{8}$	$1\frac{1}{16}$	$\frac{7}{10}$	$\frac{6}{11}$	$\frac{4}{11}$	$\frac{3}{11}$	$\frac{1}{6}$	$\frac{1}{8}$
XVIIJ	$2\frac{1}{4}$	$1\frac{1}{8}$	$\frac{3}{4}$	$\frac{9}{16}$	$\frac{3}{8}$	$\frac{2}{7}$	$\frac{3}{16}$	$\frac{1}{7}$
XIX	$2\frac{3}{8}$	$1\frac{3}{16}$	$\frac{4}{5}$	$\frac{3}{5}$	$\frac{2}{5}$	$\frac{3}{10}$	$\frac{1}{5}$	$\frac{1}{7}$
XX	$2\frac{1}{2}$	$1\frac{1}{4}$	$\frac{5}{6}$	$\frac{5}{8}$	$\frac{5}{12}$	$\frac{5}{16}$	$\frac{1}{5}$	$\frac{1}{6}$
XXI	$2\frac{5}{8}$	$1\frac{5}{16}$	$\frac{6}{7}$	$\frac{2}{3}$	$\frac{3}{7}$	$\frac{1}{3}$	$\frac{1}{5}$	$\frac{1}{6}$
XXIJ	$2\frac{3}{4}$	$1\frac{3}{8}$	$\frac{11}{12}$	$\frac{11}{16}$	$\frac{4}{9}$	$\frac{1}{3}$	$\frac{2}{9}$	$\frac{1}{6}$
XXIV	3	$1\frac{1}{2}$	1	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{4}$	$\frac{1}{5}$
XXVI	$3\frac{1}{4}$	$1\frac{5}{8}$	$1\frac{1}{12}$	$\frac{9}{11}$	$\frac{6}{11}$	$\frac{2}{5}$	$\frac{3}{11}$	$\frac{1}{5}$
XXVIIJ	$3\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{1}{6}$	$\frac{7}{8}$	$\frac{4}{7}$	$\frac{3}{7}$	$\frac{2}{7}$	$\frac{2}{9}$
XXIX	$3\frac{5}{8}$	$1\frac{9}{11}$	$1\frac{1}{5}$	$\frac{11}{12}$	$\frac{3}{5}$	$\frac{4}{9}$	$\frac{3}{10}$	$\frac{2}{9}$
XXX(ʒss)	$3\frac{3}{4}$	$1\frac{7}{8}$	$1\frac{1}{4}$	$\frac{15}{16}$	$\frac{5}{8}$	$\frac{5}{11}$	$\frac{5}{16}$	$\frac{1}{4}$

Grains in Entire Mixture	Grains in each ʒ dose in a mixture of							
	℥I	℥IJ	℥IIJ	℥IV	℥VI	℥VIIJ	℥XIJ	℥XVI
XXXI	$3\frac{7}{8}$	$1\frac{15}{16}$	$1\frac{2}{7}$	$\frac{17}{18}$	$\frac{7}{11}$	$\frac{8}{17}$	$\frac{5}{16}$	$\frac{1}{4}$
XXXIJ	4	2	$1\frac{1}{3}$	1	$\frac{2}{3}$	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$
XXXIIJ	$4\frac{1}{8}$	$2\frac{1}{16}$	$1\frac{3}{8}$	$1\frac{1}{16}$	$\frac{11}{16}$	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{3}{11}$
XXXIV	$4\frac{1}{4}$	$2\frac{1}{8}$	$1\frac{2}{5}$	$1\frac{1}{16}$	$\frac{7}{10}$	$\frac{6}{11}$	$\frac{4}{11}$	$\frac{3}{11}$
XXXV	$4\frac{3}{8}$	$2\frac{3}{16}$	$1\frac{4}{9}$	$1\frac{1}{11}$	$\frac{5}{7}$	$\frac{5}{9}$	$\frac{4}{11}$	$\frac{2}{7}$
XXXVI	$4\frac{1}{2}$	$2\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{8}$	$\frac{3}{4}$	$\frac{9}{16}$	$\frac{3}{8}$	$\frac{2}{7}$
XXXVIIJ	$4\frac{3}{4}$	$2\frac{3}{8}$	$1\frac{4}{7}$	$1\frac{3}{16}$	$\frac{4}{5}$	$\frac{3}{5}$	$\frac{2}{5}$	$\frac{3}{10}$
XXXIX	$4\frac{7}{8}$	$2\frac{7}{16}$	$1\frac{5}{8}$	$1\frac{2}{9}$	$\frac{9}{11}$	$\frac{3}{5}$	$\frac{2}{5}$	$\frac{5}{16}$
XL	5	$2\frac{1}{2}$	$1\frac{2}{3}$	$1\frac{1}{4}$	$\frac{5}{6}$	$\frac{5}{8}$	$\frac{5}{12}$	$\frac{5}{16}$
XLI	$5\frac{1}{8}$	$2\frac{9}{16}$	$1\frac{7}{10}$	$1\frac{2}{7}$	$\frac{6}{7}$	$\frac{7}{11}$	$\frac{3}{7}$	$\frac{1}{3}$
XLIJ	$5\frac{1}{4}$	$2\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{5}{16}$	$\frac{7}{8}$	$\frac{2}{3}$	$\frac{7}{16}$	$\frac{1}{3}$
XLIIJ	$5\frac{3}{8}$	$2\frac{11}{16}$	$1\frac{4}{5}$	$1\frac{1}{3}$	$\frac{8}{9}$	$\frac{2}{3}$	$\frac{4}{9}$	$\frac{1}{3}$
XLIV	$5\frac{1}{2}$	$2\frac{3}{4}$	$1\frac{5}{6}$	$1\frac{3}{8}$	$\frac{11}{12}$	$\frac{11}{16}$	$\frac{5}{11}$	$\frac{5}{14}$
XLV	$5\frac{5}{8}$	$2\frac{4}{5}$	$1\frac{6}{7}$	$1\frac{2}{5}$	$\frac{13}{14}$	$\frac{7}{10}$	$\frac{7}{15}$	$\frac{5}{14}$
XLVIJ	$5\frac{7}{8}$	$2\frac{9}{10}$	$1\frac{9}{10}$	$1\frac{5}{11}$	$\frac{17}{18}$	$\frac{6}{7}$	$\frac{9}{19}$	$\frac{4}{11}$
XLIX	$6\frac{1}{8}$	3	2	$1\frac{1}{2}$	1	$\frac{7}{9}$	$\frac{1}{2}$	$\frac{3}{8}$
L	$6\frac{1}{4}$	$3\frac{1}{8}$	2	$1\frac{5}{9}$	1	$\frac{4}{5}$	$\frac{1}{2}$	$\frac{2}{5}$
LIJ	$6\frac{1}{2}$	$3\frac{1}{4}$	$2\frac{1}{6}$	$1\frac{5}{8}$	$1\frac{1}{12}$	$\frac{5}{6}$	$\frac{5}{9}$	$\frac{2}{5}$
LIV	$6\frac{3}{4}$	$3\frac{3}{8}$	$2\frac{1}{4}$	$1\frac{7}{10}$	$1\frac{1}{8}$	$\frac{6}{7}$	$\frac{4}{7}$	$\frac{3}{7}$
LVI	7	$3\frac{1}{2}$	$2\frac{1}{3}$	$1\frac{3}{4}$	$1\frac{1}{6}$	$\frac{7}{8}$	$\frac{7}{12}$	$\frac{4}{9}$
LVIIJ	$7\frac{1}{4}$	$3\frac{5}{8}$	$2\frac{2}{5}$	$1\frac{5}{6}$	$1\frac{1}{5}$	$\frac{10}{11}$	$\frac{3}{5}$	$\frac{6}{13}$
LX (ʒj)	$7\frac{1}{2}$	$3\frac{3}{4}$	$2\frac{1}{2}$	$1\frac{7}{8}$	$1\frac{1}{4}$	$\frac{15}{16}$	$\frac{5}{8}$	$\frac{7}{15}$
ʒ ISS	$11\frac{1}{4}$	$5\frac{5}{8}$	$3\frac{3}{4}$	$2\frac{9}{11}$	$1\frac{7}{8}$	$1\frac{2}{5}$	$\frac{15}{16}$	$\frac{7}{10}$
IJ	15	$7\frac{1}{2}$	5	$3\frac{3}{4}$	$2\frac{1}{2}$	$1\frac{7}{8}$	$1\frac{1}{4}$	$\frac{15}{16}$
IJSS	$18\frac{3}{4}$	$9\frac{3}{8}$	$6\frac{1}{4}$	$4\frac{9}{13}$	$3\frac{1}{8}$	$2\frac{1}{3}$	$1\frac{5}{9}$	$1\frac{1}{6}$
IIJ	$22\frac{1}{2}$	$11\frac{1}{4}$	$7\frac{1}{2}$	$5\frac{5}{8}$	$3\frac{3}{4}$	$2\frac{4}{5}$	$1\frac{7}{8}$	$1\frac{2}{5}$
IIJSS	$26\frac{1}{4}$	$13\frac{1}{8}$	$8\frac{3}{4}$	$6\frac{5}{9}$	$4\frac{3}{8}$	$3\frac{2}{7}$	$2\frac{1}{5}$	$1\frac{5}{8}$
IV	30	15	10	$7\frac{1}{2}$	5	$3\frac{3}{4}$	$2\frac{1}{2}$	$1\frac{7}{8}$
V	$37\frac{1}{2}$	$18\frac{3}{4}$	$12\frac{1}{2}$	$9\frac{3}{8}$	$6\frac{1}{4}$	$4\frac{2}{3}$	$3\frac{1}{8}$	$2\frac{1}{3}$
VI	45	$22\frac{1}{2}$	15	$11\frac{1}{4}$	$7\frac{1}{2}$	$5\frac{5}{8}$	$3\frac{3}{4}$	$2\frac{5}{6}$
VIJ	$52\frac{1}{2}$	$26\frac{1}{4}$	$17\frac{1}{2}$	$13\frac{1}{8}$	$8\frac{3}{4}$	$6\frac{5}{9}$	$4\frac{3}{8}$	$3\frac{2}{7}$
VIIJ (℥I)	60	30	20	15	10	$7\frac{1}{2}$	5	$3\frac{3}{4}$
VIIJSS	$63\frac{3}{4}$	$31\frac{7}{8}$	$21\frac{1}{4}$	16	$10\frac{5}{8}$	8	$5\frac{1}{4}$	4
IX	$67\frac{1}{2}$	$33\frac{3}{4}$	$22\frac{1}{2}$	$16\frac{7}{8}$	$11\frac{1}{4}$	$8\frac{7}{16}$	$5\frac{5}{8}$	$4\frac{2}{9}$
X	75	$37\frac{1}{2}$	25	$18\frac{3}{4}$	$12\frac{1}{2}$	$9\frac{3}{8}$	$6\frac{1}{4}$	$4\frac{11}{16}$
XI	$82\frac{1}{2}$	$41\frac{1}{4}$	$27\frac{1}{2}$	$20\frac{5}{8}$	$13\frac{3}{4}$	$10\frac{5}{16}$	$6\frac{7}{8}$	$5\frac{1}{7}$
XIJ(℥ISS)	90	45	30	$22\frac{1}{2}$	15	$11\frac{1}{4}$	$7\frac{1}{2}$	$5\frac{5}{8}$
XIV	105	$52\frac{1}{2}$	35	$26\frac{1}{4}$	$17\frac{1}{2}$	$13\frac{1}{8}$	$8\frac{3}{4}$	$6\frac{4}{7}$
XVI (℥IJ)	120	60	40	30	20	15	10	$7\frac{1}{2}$

EXPLANATION.—IN WRITING A PRESCRIPTION look for the dose of the ingredient (say gr. $\frac{1}{20}$) in the column headed by the size of your mixture (℥VI); then on that line in the left marginal column is the quantity you must put into the entire mixture (gr. IJSS) to get your dose in each drachm thereof. IN READING A PRESCRIPTION find the quantity of any ingredient called for, in the left marginal column (say gr. ¾), and on the same line in the column headed by the number of ounces in the mixture (℥IIJ) you will find the quantity in each drachm dose (gr. $\frac{1}{32}$). Of course when the dose is more or less than ʒI the result must be proportionately multiplied or divided accordingly.

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HIS TABLE MAY BE CUT FROM THE BOOK, AND PASTED ON A CARD, FOR OFFICE REFERENCE

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